

American Artisan and Hardware Record

Sheet Metal - Roofing - Warm Air Furnaces - Stoves

Vol. 92, No. 17

CHICAGO, OCTOBER 23, 1926

\$2.00 Per Year

HORSE HEAD ZINC "Is Easy to Work"



Residence in Norristown, Pa. Horse Head Zinc sheet metal work installed by Smith & Yocom Co.

Here is an installation of which any sheet metal worker could be proud. This substantial, attractive house required substantial, attractive equipment. Horse Head Zinc is the logical metal for such work.

It is easy to do good work with Horse Head Zinc. In Mr. Smith's words, it is "very easy to work, it solders easily, and makes a substantial and rigid job." Use the coupon or write for full information and a testing sample.

All standard shapes and sizes of Horse Head Zinc conductors, gutters and fittings are made and distributed by the following fabricators:

DAVID LUPTON'S SONS CO. Philadelphia, Pa.
THE J. M. & L. A. OSBORN CO. Cleveland, Ohio . . . Buffalo, N. Y.
KLAUER MANUFACTURING CO. Dubuque, Iowa.
HOLBROOK, MERRILL & STETSON
San Francisco, Oakland and Los Angeles, Cal.
SHEET METAL MANUFACTURING CO., INC. Brooklyn, N. Y.

The New Jersey Zinc Company
160 Front Street • **New York City**

COMBINATION RANGES
COAL RANGES
GAS RANGES

WARM AIR FURNACES
CABINET HEATERS
RETURN SYSTEMS

SMITH & YOCUM CO.
HEATING, ROOFING AND SHEET METAL WORK
160 W. FRONT ST.
NORRISTOWN, PA.

June 18th, 1926

The New Jersey Zinc Co.,
160 Front Street,
New York

Gentlemen:-

Results have been very gratifying wherever we have used Horse Head Zinc. Our mechanics find it very easy to work, it solders easily and makes a substantial and rigid job. We have an installation in mind in Norristown that we are very proud of and are sending you a photograph of it.

We are sincere in our belief that Horse Head Zinc is a satisfactory and thoroughly reliable article in every respect.

Very truly yours,

SMITH & YOCUM COMPANY

R. L. Smith, Pres.

THE NEW JERSEY ZINC COMPANY
160 Front Street, New York City

Please send me a sample of Horse Head Zinc so that I can test its easy working qualities.

NAME _____

ADDRESS _____

TIN PLATE

for

**Warm Air Heater Pipe
and Fittings**

Diversified Weights and Sizes

**LARGE
COMPLETE
STOCKS**

AND

**PROMPT
DEPENDABLE
SERVICE**

Warehouses at
CHICAGO — PITTSBURGH — NEW YORK

C. S. DAVIS AND COMPANY, INC.
37th and Iron Streets **CHICAGO, ILLINOIS**

BURNS THE SMOKE and SAVES FUEL!

THE SUPER-SMOKELESS Furnace is the best investment a home owner can make. It burns the smoke as valuable fuel, obtaining full heat value from the coal. This means a large saving in annual heating costs. It has proved to be a big fuel saver burning hard coal, as well as soft coal. The addition of oxygen at the right place and temperature ignites the gases distilled from the fuel, and, even with hard coal, generates more heat from less fuel.

We are now telling the public the big story of clean, efficient and highly economical home heating through the medium of The Saturday Evening Post. The result of this advertising is sure to be a nation-wide demand for this high-grade heating plant which radically cuts fuel costs. There is a big opportunity for the dealer who cashes in on this demand and on the merits of the SUPER-SMOKELESS Furnace.

The SUPER-SMOKELESS Furnace will mean dollars in your pocket. The dealer who sells them is in a distinct class—actually above competition. He can increase his business and get better prices.

Write for full information TODAY.

UTICA HEATER COMPANY

UTICA, N. Y. — CHICAGO, ILL. — MANUFACTURERS OF THE

CELEBRATED LINE OF WARM AIR FURNACES FOR EVERY HEATING NEED



Published Weekly by American Artisan and Hardware Record, Inc., 620 South Michigan Avenue, Chicago, Illinois.
Entered as Second Class Matter June 25, 1887, at the Post Office at Chicago, Illinois, under act of March 3, 1879.



Did you ever figure up your profits on a furnace installation; and then unfigure them as the service calls came in? Hundreds of dealers have been kidding themselves for years on the so-called profits made on cheap furnaces?

The man lucky enough to have the Moncrief Furnace agency figures profits just one way. He has only to do a good job of installing, get a fair price for his work, and the Moncrief will do the rest.

Our proposition will make money for you.

The

Henry Furnace & Foundry Co.
3471 E. 49th Street

CLEVELAND, OHIO

Manufacturers of single and double wall pipe and fittings, galvanized pipe and fittings, etc.

Eastern Sales Offices:

F. H. HANLON
Batavia, New York

W. S. McCREA
105 Federal St., N. S.
Pittsburgh, Pa.

Western and Southern Distributors

JOHNSON FURNACE CO.
Kansas City, Missouri

MONCRIEF FURNACE CO.
Atlanta, Ga.

MONCRIEF FURNACE & MFG.
CO.
Dallas, Texas



MONCRIEF FURNACES

Mention AMERICAN ARTISAN in your reply—Thank you!



A line of furnaces
you can sell at all
times—at a profit.

WISE furnaces keep up with the times—not only in design but in market conditions. WISE dealers never have to change their line—QUALITY IS ALWAYS HIGH and PRICES ALWAYS RIGHT.

WISE furnaces are just plain good first quality heating plants throughout—minus all fancy "frills." WISE furnaces constitute a line of furnaces that you can build business with—making a satisfied customer and a handsome profit with each sale.

The WISE catalog goes into WISE construction details. You'll find it interesting because it describes a line of furnaces that has been breaking profit-making records for over twenty-five years. Write for your copy today.

*The WISE FURNACE CO.
AKRON, OHIO*

WISE
BACKED BY OVER TWENTY-FIVE YEARS'
EXPERIENCE IN MAKING GOOD FURNACES

Questions Home Owners Ask The AFCO Dealer and Their Answers

(C) NO. 4 (S)

Why Is The "AFCO" Furnace Superior For Oil Burning?

THE airtight riveted construction of "AFCO" Furnaces eliminates the possibility of fumes leaking into the circulating system. No cemented joints on the furnace body.

There are no direct drafts on "AFCO" Furnaces, no heat is wasted up the chimney. The locktite handles on the feed and ash pouches seal the openings against leakage of fumes into the basement.

It's an easy matter to keep an accurate fuel cost when the home is heated with oil. That's why "AFCO" owners are so enthusiastic over the performance of their heating systems.

Many "AFCO" owners tell us it costs less to heat with oil than with other kinds of fuel—a remarkable example of "AFCO" efficiency.

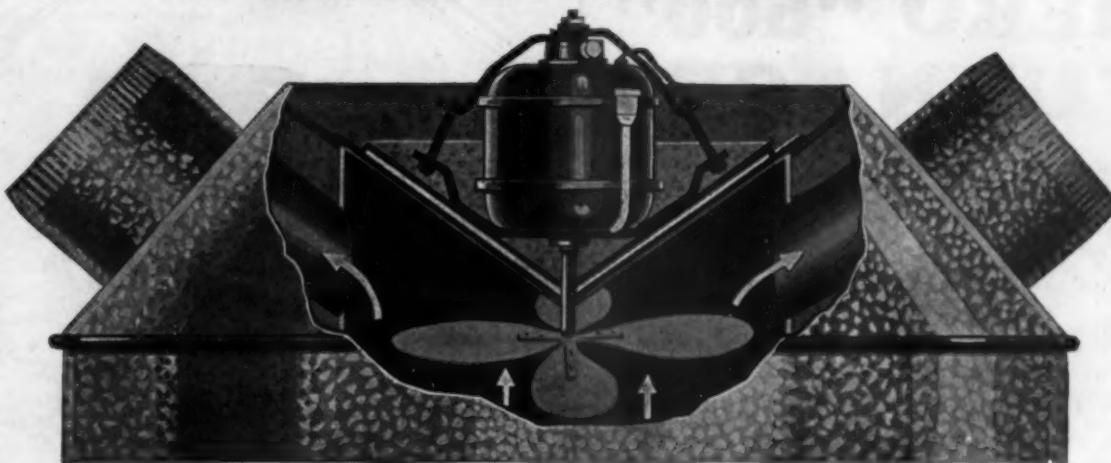
You can sell "AFCO" Boiler Plate Furnaces with the assurance that they will give complete satisfaction and boost your business.

THE "AFCO" AGENCY is available to one live dealer in each town. Write for our new dealer plan today.

American Furnace Co.
2719-31 Morgan St. Dept. 41 St. Louis, Mo. "Built Like a Power Boiler"



A REGULAR GEE-WHIZZER



THE ROBINSON HEAT DISTRIBUTOR SOLVES THE LONG PIPE PROBLEM

This Fan will insure Uniform Temperature in every room in the house—and do it economically. Can be installed in any make of Furnace.

WRITE TODAY FOR DESCRIPTIVE CIRCULAR AND PRICES

5103 DETROIT AVE.

THE A. H. ROBINSON CO.

CLEVELAND, OHIO



Outstanding Points of Superiority

YOU men who know furnaces can spot the superior points of a better construction in a minute. There are several reasons why the wise furnace man chooses

HERO "600" FURNACES

Check off those points and see if you know of a furnace that offers as much.

1. Air washer humidifier system.
2. Cup joint—smoke and gas tight—in firepot.
3. Upright handle shaking type roller grate.
4. Wave top combustion chamber.
5. Air jet combustion.
6. Sectional radiator—smooth inside.

Dealerships Open

We have a special exclusive proposition for the dealer who wants to build a quality business.

Write for details.

HERO FURNACE CO.
101 DeKalb St. Sycamore, Ill.



THE designing of ATH-A-NOR Furnaces was done with an expert and experienced regard for the heating needs of your customers. ATH-A-NOR features are practical and ATH-A-NOR quality is known through long years of faithful service.



ATH-A-NOR dealers never worry about price competition—they sell a quality line that always sells and always returns a better than average profit. ATH-A-NOR furnaces are especially noted for their Powerful, Efficient and Economical heating service.

**The MAY-FIEBEGER
FURNACE COMPANY**
Newark, Ohio

QUICK DELIVERIES of "The Furnace The Public Wants"



EVEN on deliveries the makers of Western Boiler Plate Furnaces have considered the convenience of their dealers. Stock are carried at the points listed below and other distributing centers.

Quick deliveries, long profits, liberal terms, useful selling helps are all reasons why Western Dealers are making money. But the especial reason is because Western Boiler Plate Furnaces are practical, economical and efficient — "Just What the Public Wants."

"western" Boiler Plate

Are carried in stock by the following distributors:

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American Foundry & Furnace Company, Bloomington, Ill.

KANSAS AND MISSOURI

Kansas City Furnace Company, Kansas City, Missouri.

NEW ENGLAND STATES

Decatur & Hopkins Company, 93 Berkeley St., Boston, Mass.

WEST CENTRAL STATES

Standard Furnace & Supply Company, Omaha, Nebraska.

SOUTHERN STATES

Monerief Furnace Co., Atlanta, Ga.

CALIFORNIA AND NEVADA

Pacific Coast Sheet Metal & Furnace Company, 3200 Geary Street, San Francisco, Cal.

Western Steel Products Co.

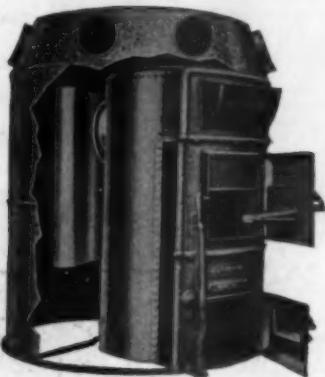
130 Commonwealth Ave.

Duluth, Minn.

Standard Dealers Know in Advance

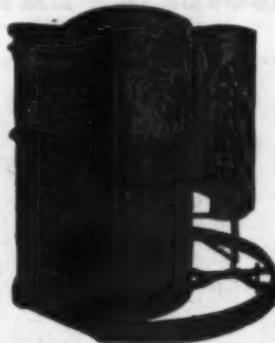


THAT every buyer will become a Booster. The furnaces shown on this page have proven their ability to return dollar for dollar to the consumer in extra service rendered. Standard Dealers are also assured of real profits by our Dealer Plan, which is different.



9 styles and 47 sizes of steel and cast iron furnaces carried in stock at all times. Nowhere else can you find such a variety to select from.

They are sufficient to meet demands from all classes of trade.



Furnace Supplies, such as the following, are nationally known as the Standard of Comparison:

HANDY PIPE & FITTINGS
R 1 NO STREAK REGISTERS
H & C No. 170—No. 190 REGISTERS
STAN-CO REGISTERS
STEEL & SEMI STEEL REGISTERS
WISS SNIPS
PEXTO TOOLS

Everything needed by the Furnace Installer

STANDARD FURNACE & SUPPLY CO.
OMAHA, NEBR.

Warehouse — Sioux City, Ia.

**HALL-NEAL VICTOR FURNACES
with FIN radiation**



Patented
Jan. 2, 1923

Stop Waste of Heat

YOU don't have to case a Hall-Neal Victor Furnace with 2 or 3 inches of asbestos to stop excessive heating of the furnace room.

Intercepting Heat Conveyors—(patented January 2, 1923)—are fins on the furnace body which increase radiating surfaces 300 per cent and they save 20 per cent or more of fuel bills.

Hall-Neal Furnaces with FIN radiation are easier to sell because of this great improvement. Any good, live furnace dealer can make more money with this valuable franchise. Ask us for a demonstration.

HALL-NEAL FURNACE COMPANY
1322-32 N. Capitol Avenue Indianapolis

*Manufacturers of Victor Boiler Plate Furnaces
for more than a quarter century*

The Improved Heating Unit

The MELLOW FURNACE

IF you want orders filled promptly and customers thoroughly satisfied do what hundreds of other warm air heating contractors are doing—rely on us and the MELLOW furnace.

*Look at the construction—
notice the features—*

One-Piece Radiator

Heavy-Ribbed Two-
Section Fire Pot
(Guaranteed)

All Parts Heavy and
Correctly Proportioned

Large Combustion
Chamber

Large One-Piece Ash Pit

One-Piece Floor Ring
and Pan

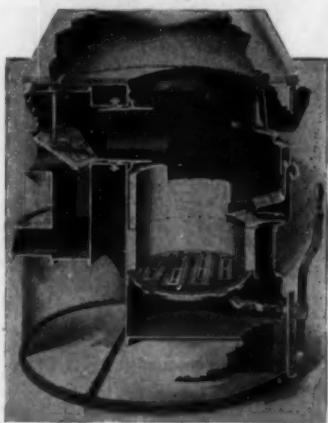
*Write today for our
agency details and
the Mellow catalog.*



CHICAGO OFFICE, R. G. RAY, Manager
2356 N. Clark St. Lincoln 0091

Liberty Foundry Company
St. Louis, Mo.

**The Williamson
BOILER PLATE FURNACE**



In adding the Boiler Plate Furnace to its line, this company is merely extending into the steel furnace field the leadership which it has attained in the manufacture of cast furnaces.

The Williamson Boiler Plate has exclusive features which instantly remove it from the ordinary furnace of this type.

It is all-welded, making it permanently gas and dust tight. Dome made from copper-bearing, blue-annealed locomotive firebox steel—radiator made from Armco iron. Double baffle in radiator splits the hot gases into two streams so that all radiating surface is fully utilized—an exclusive feature. Hot-blown smoke-consumer in door and consumer vents in fire-brick lining supply hot oxygen directly over the flames, consuming all the heat elements in the fuel. Designed with the demands of the oil burner in mind, making it ideally adapted to any fuel.

Many other attractive features further emphasize the superiority of the Williamson Boiler Plate Furnace. New and interesting sales policy gladly submitted. Make sure of your territory NOW.

The Williamson Heater Co.
Cincinnati, Ohio

**This Pipe
gives better service**

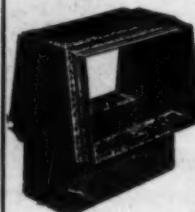
JUST take two sections of Chicago Pipe and snap them together—see for yourself how easily, quickly and firmly they fit together—see how strong CHICAGO Pipe is made and notice the extra weight and high quality of the material.

*Yes, we will send sample—just write today
for our Catalog No. 22 and price listed*

CHICAGO FURNACE SUPPLY CO.

1276-78-80-82 Clybourn Ave.

CHICAGO



**CHICAGO
FURNACE PIPE
AND FITTINGS** 

BOOMER

THIS is our latest addition to the Boomer line. We heartily recommend it for your favorable consideration.

The severe tests we have given this furnace have proven its durability. The unsolicited reports we received from users last winter have been most flattering.

For durability, economy, easy to operate, easy to set up and the low price at which we offer this furnace, you will make no mistake in arranging for the agency.

**THE HESS-SNYDER CO.
MASSILLON, OHIO**

Makers of BOOMER FURNACES for Forty-Three Years



**FLORAL CITY AGENTS NEED CARRY ONLY ONE LINE
BECAUSE THE QUEEN FURNACE IS THE ALL PURPOSE FURNACE**

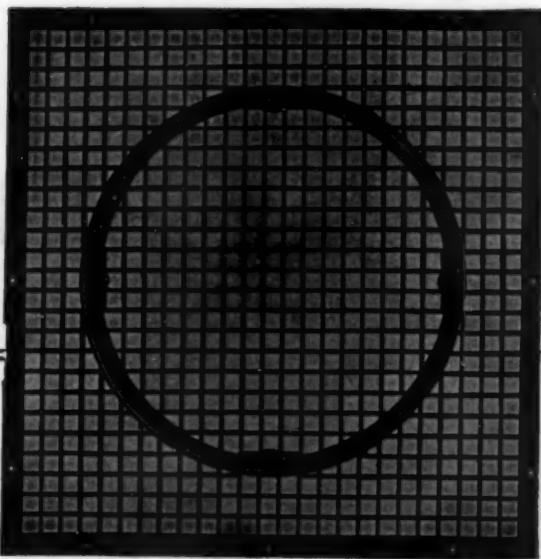
SUITABILITY TO ANY FUEL	—	EXCEPTIONAL MERIT
SOLD ONLY TO THE TRADE	—	ADAPTABILITY TO ANY JOB
EXCLUSIVE FEATURES	—	PERFECT COMBUSTION
LONG SERVICE GUARANTEE	—	EFFICIENT HUMIDIFIER
PROVIDES RAPID CIRCULATION OF AIR	—	INTERCHANGEABLE GRATES

THE FLORAL CITY
MONROE, MICHIGAN

HEATER CO.
1654 Monadnock Bldg., CHICAGO, ILL.

The latest news about the Warm Air Heating Industry is to be found in this Journal every week.

This is the only trade Journal covering this field published every week.



*An unusually well made
and carefully finished
pipeless grating*

WALWORTH *Duplex Register*

THIS grating is run through the polishing machine five complete turns before it is sent to you.

It is by far the most popular pipeless grating on the market and its high quality is the reason.

The Walworth Duplex Grating is made in seven standard sizes from 22x24 to 45x45.

We carry immense stocks at all times in order to supply your needs promptly.

The design shown above is our Plain Lattice Design. It is very strong and durable and unusually neat.

Write today for complete catalog
and price list.

Made by the makers of

Walworth Semi-Steel Registers, Ventilators, Borders, Side Wall and Base Board, Registers and furnace Casing Rings

THE WALWORTH RUN FOUNDRY COMPANY

West 27th Street and N. Y. C. & St. L. R. R., Cleveland, Ohio

Distributors:

ROBINSON FURNACE CO., Chicago, Ill.
HART MFG. CO., Louisville, Ky.

PHILLIPS & BUTTORFF MFG. CO., Nashville, Tenn.

Eastern Representative:

PENN TINSMITH'S SUPPLY CO., Philadelphia, Pa.

"The quality pipe
of
mechanical perfection"



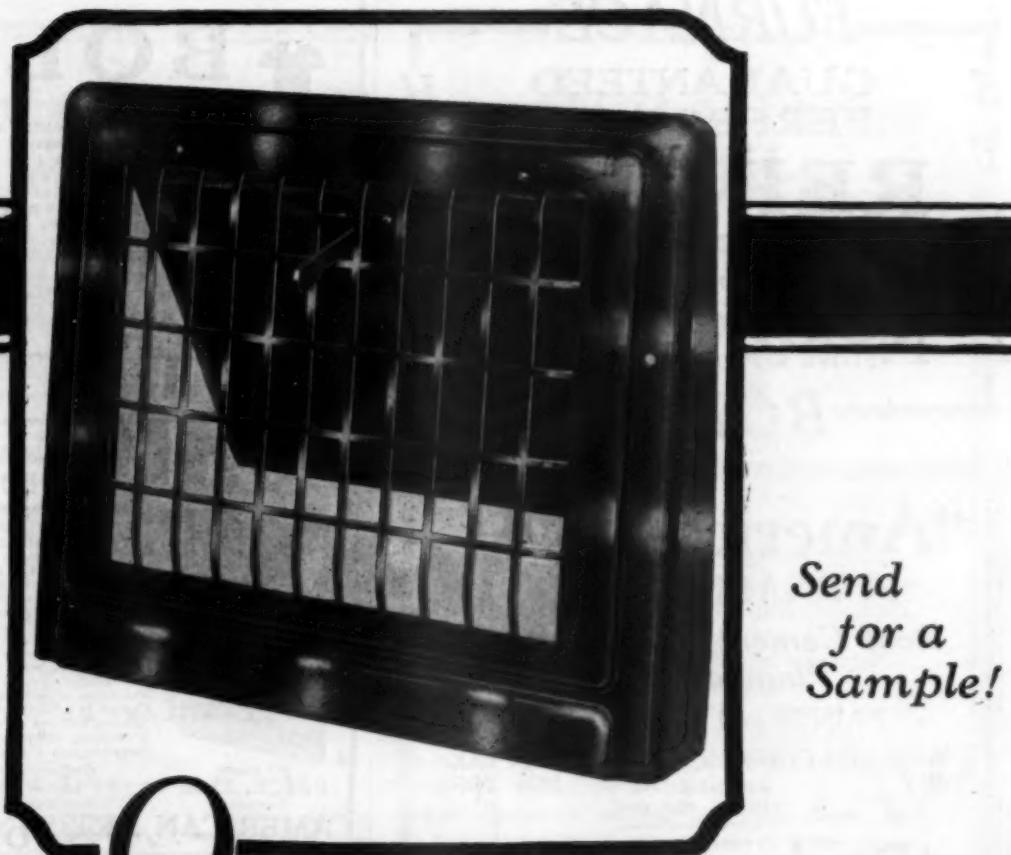
THE recent improvements made in furnace pipe construction were started by KWIK-LOK.

You should know that KWIK-LOK originated the spring self-locking device with the longest connecting joint having the inner and outer wall in one continuous piece.

We are always glad to send a sample of KWIK-LOK pipe so you can examine its quality first hand.

Kwik-Lok
FURNACE PIPE
AND FITTINGS

E. C. DUNNING, Inc.
MILWAUKEE
WISCONSIN



One Hundred Per Cent Free Air Capacity without loss of strength or attractiveness

YOU never saw a finer piece of Register work—a better balanced job of designing than that found in this register.

This improved model while having the enlarged openings to allow 100% Free Air Capacity, is nevertheless strong and exceptionally neat in appearance.

The Improved STEARNS REGISTER

is the only register made that possesses an operating device that does not rely on springs or tension to be effective. The operating device on the STEARNS REGISTER is very simple and most effective. It is exclusive with the STEARNS and is fully covered by patents.

The Register comes in all the standard sizes and finishes. STEARNS finishes are of the highest quality. All the regular electro-plated finishes can be had and also the popular lacquer finishes such as Brush Brass, Antique Brass and a perfect replica of Oxidized Copper. All lacquer finishes sell on same list price as White Japan.

Our new factory has increased our production facilities. Let us tell you how our selling plan saves you money.

Write today for catalog and prices

STEARNS REGISTER COMPANY

1234 Mt. Elliott Ave.

Detroit, Mich.

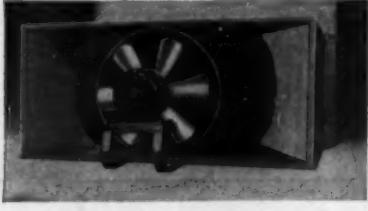
Double Your Furnace Business Increase Your Profits thru



Miles Automatic Furnace Fan with Automatic Louvers closed. Fan in operation.

What the Miles Automatic Furnace Fan Does

1. Doubles volume of heat. Doubles air flow, and increases the velocity with which air impinges against furnace castings, imparting a rubbing action which extracts twice the heat without increasing fuel consumption. This heated air is rapidly pushed up through pipes in every room, no matter how far from furnace.
2. Provides four changes of air every hour in every room. Assures ventilation as well as heat in volume.
3. Saves the furnace castings by preventing overheating, insuring longer life and lower cost of operation.
4. Saves 30 to 40% fuel. Cuts loss of radiant heat into cellar to minimum. Stops wasteful smokepipe or stack losses.
5. Gives instant heat. No long waits for warm air pipes to heat up. Warm air delivered within five minutes after you turn on the fan.
6. Every register delivers. No cold registers, no cold spots.
7. Even heat, floor to ceiling, assured. Only a variation of a few degrees between floor heat and ceiling heat.
8. Pushes warm air up the pipes in winter and cool air up the pipes in the summer.



Showing bypass louvers open.

FORCED AIR!

FORCED AIR is the new secret of success in the warm air furnace business.

The idea is simple. *Forced Air* means forcing, blowing, or pushing warm air up the pipes in winter and *cold air up the pipes in summer by means of mechanical pressure instead of depending upon gravity*. The Miles Automatic Furnace Fan, which makes forced air possible, pushes the air up the pipes to every room instead of letting it "ooze up" by gravity. It increases the velocity of the air flow and steals the *heat* from the firepot castings and pushes it up to every room where it is wanted before it has a chance to leak out of the chimney.

Makes every register a *heating register*. You can guarantee to heat every room regardless of wind pressure or direction.

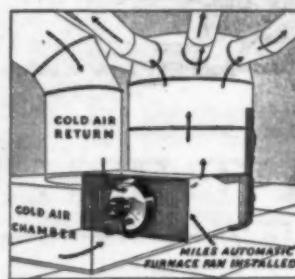
Endorsed by over fifty furnace manufacturers for new or old jobs

Forced Air, through the Miles Automatic Furnace Fan, will cure all your "sick" jobs. Forced Air will help you to get new and better business—the larger residences, garages, factories, churches—because you can now sell them on a *Guaranteed Heat Performance Basis*.

Write us. We show you how to install and help you to figure plans

All the facilities and experience of our Engineering Department are at the service of our customers. Get a Miles Automatic Furnace Fan on your floor, hook it up to a furnace; demonstrate it. It will help you to bigger and more profitable furnace orders than you ever dreamed possible. Write.

The Warm Air Furnace Fan Company
6521 Cedar Avenue
Cleveland, Ohio



MILES AUTOMATIC FURNACE FAN

THE WARM AIR FURNACE FAN COMPANY 6521 Cedar Ave., Cleveland, Ohio

- Send catalog and data on "Forced Air" and Miles Automatic Furnace Fan.
 Send new folders on New Markets for Furnaces

Big Residence Jobs
Church Heating
Garage Heating

Name _____
Address _____
City _____ State _____

Founded 1880

American Artisan
and Hardware Record

Published to serve
the
Warm Air Furnace,
Sheet Metal, Roofing
Stove and Hardware
Industries

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AN ACHIEVEMENT

An explanatory note regarding service to readers of AMERICAN ARTISAN. This paper is now nearing the completion of a half century of service. For almost fifty years it has catered to the needs of the men in the industries which it represents. At no time during its long and successful career has AMERICAN ARTISAN been in a better position to render complete, adequate service to its readers than it is today. In addition to the matter contained in our regular weekly publication, we maintain Service Departments for the use of our readers. If you have a problem to solve, we courteously invite you to submit it to us for solution. In what better way can we learn of your problems than from you direct?

PRICE is always relative. You may purchase a suit of clothes for \$25 that will last three months—where by paying double that amount you could have obtained one that would last a year.

The comparison holds good in every thing we buy. Particularly is this true in the purchase of furnace pipe and fittings. You can always obtain a substitute for quality at an initial saving—but a compromise with quality proves a costly experiment over a period of time. Don't do it.

Adhere to a quality standard. Accept only the best. Lamneck Simplified Pipe and Fittings cost no more than others of acceptable quality. Get samples.

THE W. E. LAMNECK COMPANY
416-436 Dublin Ave., Columbus, Ohio

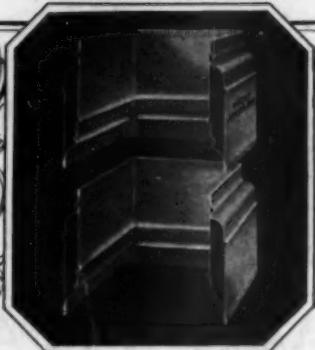
Western Representatives:
THE QUICK FURNACE & SUPPLY CO., Des Moines, Iowa

LAMNECK

SIMPLIFIED PIPE AND FITTINGS

Lamneck Double Wall Non-Vented Pipe

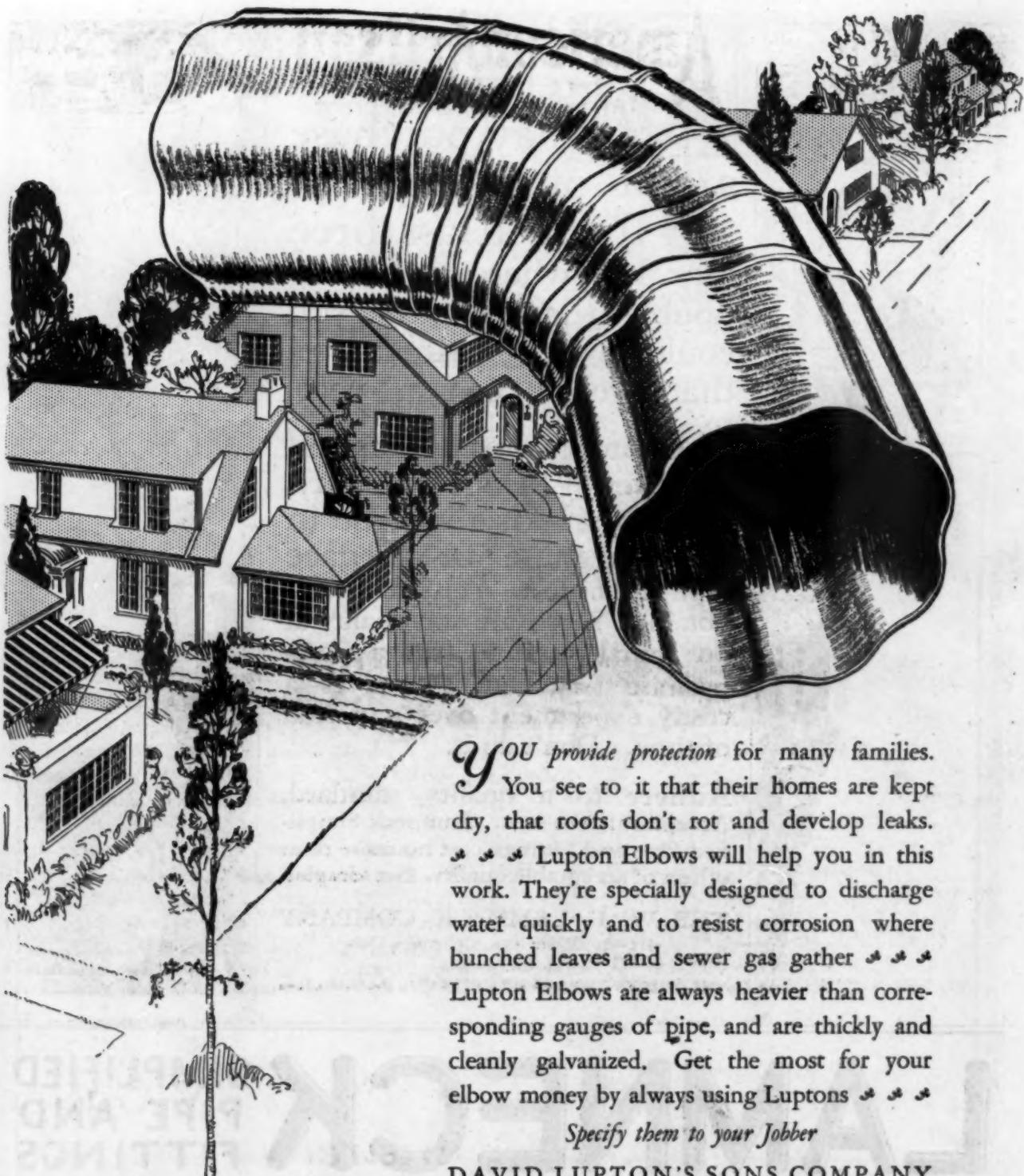
Here is the most rigid pipe on the market with an unexcelled locking feature. Eight percent more efficient than vented pipe.



Write Today

If you are not familiar with the Lamneck line; if you do not have our catalog or discount sheet—write us today. Samples, too, of any of our own manufactured products furnished free for the asking.

October 23, 1926



*Y*OU provide protection for many families. You see to it that their homes are kept dry, that roofs don't rot and develop leaks. * * * Lupton Elbows will help you in this work. They're specially designed to discharge water quickly and to resist corrosion where bunched leaves and sewer gas gather * * * Lupton Elbows are always heavier than corresponding gauges of pipe, and are thickly and cleanly galvanized. Get the most for your elbow money by always using Luptons * * *

Specify them to your Jobber

DAVID LUPTON'S SONS COMPANY
Allegheny Avenue and Tulip Street Philadelphia, Pa.

LUPTON

ELBOWS THAT FIT

Mention AMERICAN ARTISAN in your reply—Thank you!



American Artisan and Hardware Record



Vol. 92.

CHICAGO, OCTOBER 23, 1926

No. 17.



Ambassador Hotel, Atlantic City, New Jersey, Where Metal Branch Meeting, National Hardware Association, Was Held Thursday, October 21, 1926

Metal Branch Meeting Finds 29-Gauge Pipe and Gutter Entirely Gone

No. 24 Gauge Substituted for No. 28 as a Base in Black and Galvanized Sheets

THE Metal Branch members of the National Hardware Association held their meeting at the Ambassador Hotel, Atlantic City, Thursday afternoon, October 21. The meeting was in charge of Chairman W. H. Donlevy. Chairman Donlevy's opening remarks were as follows:

Opening Remarks of Chairman Donlevy

During the year, our industry has continued to progress in the process of eliminations that should be beneficial to the trade.

No. 29 gauge pipe and gutter has apparently entirely disappeared. The manufacturers of elbows have re-

cently announced the abandonment of production of No. 29 gauge galvanized steel elbows, and also 14-ounce copper elbows.

One of the most radical changes that has occurred in the trade is the recent substitution of No. 24 gauge for No. 28 gauge as a base in black and galvanized sheets. The manu-

factors' reasons for the change were explained during the metal branch session.

There is little or no complaint from our members as to volume of business, though hand-to-mouth buying still prevails in some sections.

With the splendid transportation and truck delivery systems now in vogue, giving quick service, there seems to be a disposition on the part of many to carry less stocks and to make frequent calls on the wholesalers.

We continue to hear complaints of unsatisfactory profits. Excessive and wasteful competition, combined with the apparent inability to reduce the overhead, are mainly responsible for this condition.

We again heartily endorse the national advertising campaign of The Sheet Steel Trade Extension Committee, which seems to be bearing fruit, as increased consumption of sheet steel can in many instances be traced to their efforts.

Modern conditions have created new uses for sheet metals and both the wholesalers and the sheet metal contractors should use their best efforts to supply these new demands.

Recognition and commendation is due the National Association of Sheet Metal Contractors for the splendid educational work it has done recently among its members.

Our thanks are also extended the trade press. These excellent publications have given valuable assistance to their subscribers in the promotion of their business.

Both these factors are great aids in increasing the use of sheet metals and in making better business men of the trade.

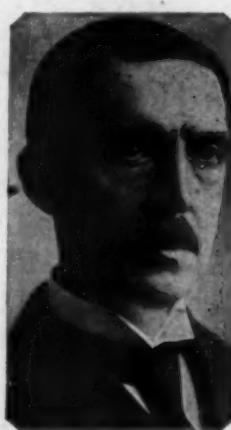
While we have endeavored to provide a program of interest, yet suggestions from the members on subjects that are not listed are always in order and will be welcome.

An address on "Tendencies in Steel" by A. I. Findley, editor of *The Iron Age*, contained a succinct survey of the steel situation at the present time. Mr. Findley's address is published in part on page 162 of this issue.

Following directly after the address by A. I. Findley, Chairman Donlevy called upon representatives of the various mills for expressions on sheet steel market conditions.

The consensus of the representatives of seven mills was that business in black and galvanized sheets has been good and will continue in this manner for an indefinite period. These men were all very optimistic in their outlook.

C. C. Mercer, Central Alloy Steel Corporation, stated that the new base and differentials are working



Chairman W. H. Donlevy

fine and are almost universally used at the present time.

That the simplification schedule is working out well in every respect was reported by Walter C. Carroll, Chairman Inland Steel Company, Chicago. According to Mr. Carroll, figures indicate that the trade is facing at the present time one of the largest sheet steel roofing businesses that it has had in years. He also said that the tendency is away from the light gauges. With the assistance of the U. S. Chamber of Commerce, a complete survey will be made by the simplification board of review during the first half of 1927, in order to determine whether the tendency of demand is for lighter or heavier weights than have been used in the past.

In reporting for the Terne Plate Simplification Board of Review, L. D. Brueckel, Weirton Steel Company, Chicago, stated that the results of the questionnaire to the distributors were not available for presentation at the meeting because of

the death of T. James Fernley. Mr. Brueckel stated that with the aid of the government the committee will ask manufacturers to report what coating weights will be used this year. The manufacturers will also be asked to suggest weights to be eliminated. He said that opinion on terne plate stampings are at the present time very diversified, but the general consensus is favorable, especially as regards protection to the ultimate consumer.

Secretary W. C. Markle of the National Association of Sheet Metal Contractors, approved stampings and said that the indications are that sheet metal roofing is coming back strong.

E. H. Hoffeld, The Ferdinand Dieckmann Company, Cincinnati, Chairman of the Elbow Simplification Board of Review, reported elbows 100 per cent over on 28-gauge metal.

R. L. McHale, David Lupton's Sons Company, Philadelphia, reporting on the Eaves Trough and Conductor Pipe Simplification Board of Review, reported a 96-per cent consumption on eaves trough in the 28-gauge and heavier metals.

C. L. Patterson, Secretary of the Sheet Steel Trade Extension Committee, reviewed the work of the committee since the last meeting of the metal branch. Mr. Patterson's remarks are included in part on page 160 in this issue.

G. F. Stanton, of the Baltimore Copper Smelting & Rolling Mills Company, Baltimore, Md., who was present at the meeting, said that the copper business is very good at the present time.

The metal branch meeting was very well attended and a spirit of optimism pervaded the proceedings.

Who Makes "Royal Winner" Cook Stove?

To AMERICAN ARTISAN:

Can you tell me who makes the Royal Winner Cook Stove as we would like to get repairs for it.

Yours truly,
CONN BROTHERS.

Showing Construction of Blow Piping Systems

Types of Blower Systems Used in Factories to Exhaust Fumes

By O. W. KOTHE, Principal St. Louis Technical Institute

BLOW piping installations are becoming more and more necessary since greater safeguards to health must be devised and factories must be equipped with piping systems. Then, too, more and more factories are being erected which produce higher efficiency or production and which naturally produces more refuse as well as dust and bad air and which must be taken care of. Here a blower system is a valuable convenience in removing the refuse as well as conserving the better vigor of the workers. Some shops of the larger kind are equipped with power machinery to do things in a rapid manner, while smaller shops

must do the same things as best they can.

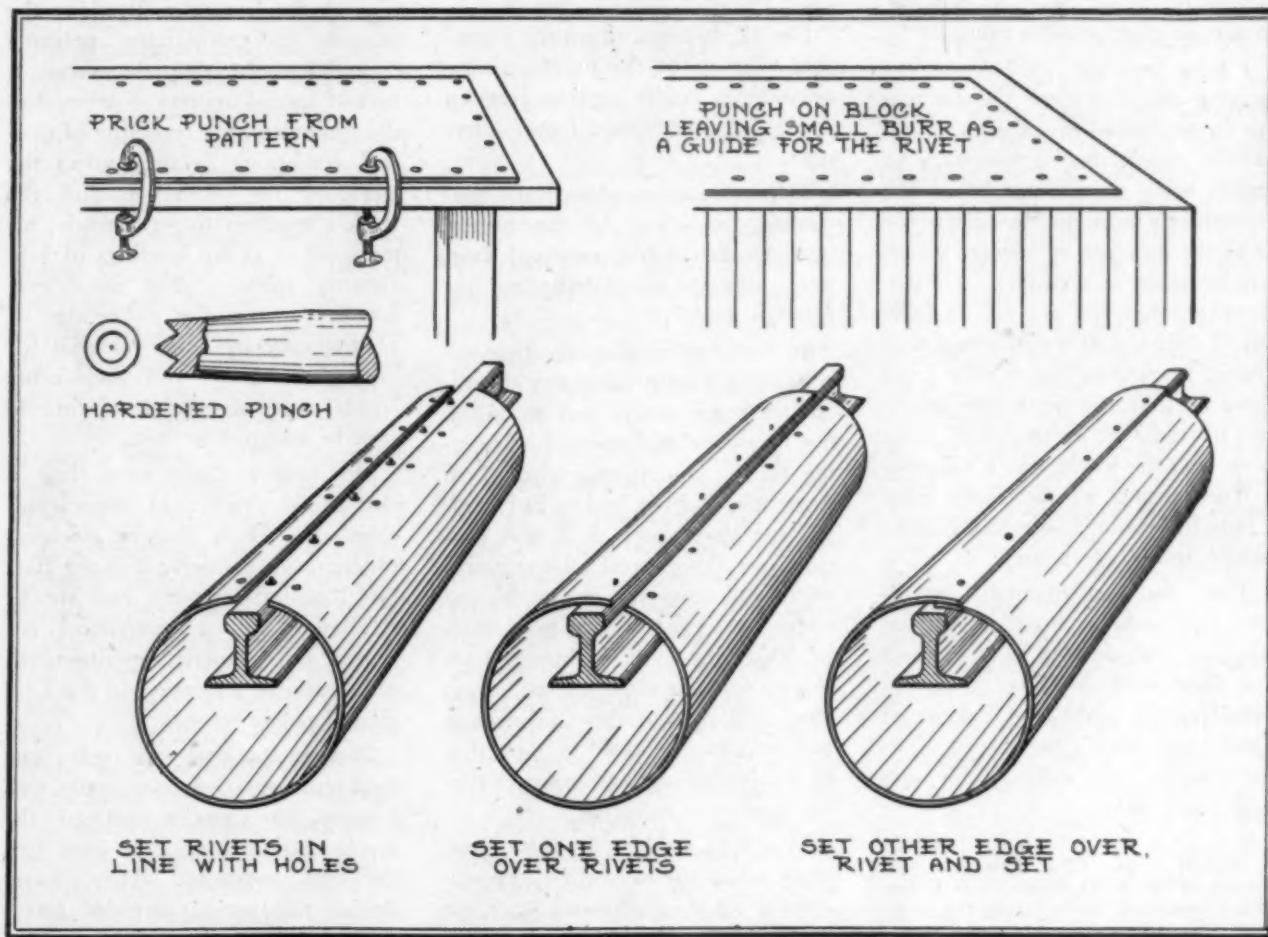
In the illustration we show the manner of preparing pipe for assembling. It is a sketch that was sent in by one of our students from Kalamazoo.

Here we see the pattern for pipe is clamped down on the bench and the other sheet is marked from it by means of a center pointed hardened punch. This merely prick punches the sheet below and enables its removal to a wooden block where the holes are then punched through. The slight burred edge which is left is an aid to placing the rivets.

This is about the best disposition

that can be made for hand made pipe, but where pipe is made in larger quantities it is really better to have a lever punch and to clamp together two or three sheets over a pattern and then punch all three through the pattern. Of course, in larger shops where they have gang punches they are able to punch long lengths of rivet holes with one operation and that, of course, is a great saving in effort and labor.

After the pipes are rolled, they are laid on a stake similar as the position to the left where rivets are set alongside the holes, after which the workman lifts the edge up and gradually sets it down over the



Details for Assembling Pipe Work

rivets similar as the second sketch shows. After this the other edge is hooked over and the riveting can commence, using a rivet set and hammer and setting them in a rapid manner. This, of course, takes

practice, otherwise the rivets will be brushed off from the stake and some worry will be met with before a person is accustomed to doing the work efficiently as outlined in this article.

C. L. Patterson Reviews Work of Sheet Steel Trade Committee*

Outlines Plan for Testing Heat Transmission of Metal Roof

I APPRECIATE this opportunity of presenting to the Metal Branch of the National Hardware Association the purposes, the achievements and the plans of the Sheet Steel Trade Extension Committee.

It is impossible within a short space of time to even mention the many activities in which the committee is engaged, and I have, therefore, in order to save time, reduced my remarks to writing and will endeavor to say as much as possible in the shortest possible time.

I trust you will pardon me for quoting statistics since I know you are not interested in statistics to any greater extent than is necessary to report some of the results of the committee's work and to satisfy you as to the measure of success which has attended our efforts. I trust, however, that you are not as fearful of statistics as was the man who feared to increase his family from three to four children, since statistics proved that every fourth child born into the world was a Chinese.

The purpose of the Sheet Steel Trade Extension Committee may be briefly stated as follows:

First and fundamentally, to regain lost markets, broaden existing markets and develop new markets for sheet steel, leveling, so far as possible, the peaks and valleys of production which have been characteristic of our industry for several years past.

Second, to educate the component parts of the industry—the manufacturer, the distributor and the fabricator, as to the possibilities of merchandising the product in which we are all mutually interested, and to unite our efforts toward breaking down sales resistance.

Third, to encourage these different branches of the industry to help themselves by creating for them a new interest and confidence in their business and its possibilities.

Fourth, to break down the prejudice existing in the minds of the consuming public against certain products fabricated from sheet steel.

Fifth, to further educate the consuming public as to the utility, strength, safety and beauty of sheet steel, and its adaptability to unfamiliar uses.

In order to accomplish these results, it has been necessary to create an organization and to install the necessary machinery for carrying on the committee's work. On September 1st, we had on our mailing list the names of 77,463 consumers of sheet steel. In our production files we have the names and addresses of the leading fabricators of something over six hundred articles manufactured from sheet steel, and it is to these fabricators that inquiries received at our office as a result of our national advertising have been referred.

We will, within a short time, place within the hands of every purchasing agent, department store, ten cent store and hardware store selling any product manufactured from

sheet steel, a list of where every such article can be purchased, together with the name and address of the fabricator.

Mailing Record

During the two years that the committee has been in existence we have mailed out from the Central Office a total of 819,237 pieces of literature requested by readers of our advertisements.

Direct mail advertising to architects	32,036
Direct mail advertising to fabricators	44,275
Direct mail advertising to jobbers	65,373
Sheet steel service magazines	208,100
Making markets magazines	220,585
Sheet metal contractors' booklets	17,867
Advertising copy to salesmen	6,333
TEC "Master Brand" booklets	50,000
Articles manufactured from sheet steel booklets	50,000
Farmer and public booklets	2,090
Letters to consumers	122,578
Total	819,237

Field Representatives

The trade extension plan, under which we are operating, provides for the employment of field representatives, working under the direction of the Central Office, for the purpose of maintaining personal contact with the trade, the investigation of special matters of interest to the committee, the reporting of general conditions as they affect the work of the committee, and the trade's reaction to such work; attendance at group meetings of fabricators, jobbers, sheet metal contractors, etc.; the collecting of photographs and other material for general publicity, and such other special work as may from time to time be assigned to them.

We have at the present time in our employ two field representatives—Mr. H. S. Rogers, mechanical engineer, formerly with the Barrett Roofing Company, and Mr. C. L. Bailey, also a mechanical engineer, and formerly superintendent of vocational education in the Cincinnati public schools.

During the past two years our field representatives have pretty well covered the country east of the Rocky Mountains on at least two different occasions. They have, during this period, attended forty-seven group meetings of fabricators, jobbers, sheet metal contractors,

*Report of Mr. C. L. Patterson, Secretary of the Sheet Steel Trade Extension Committee, made before the members of the Metal Branch, National Hardware Association, Thursday, October 21, 1926, at Atlantic City.

salesmen, etc.; have called upon the trade in the cities visited; have called their attention to the work of the committee, suggesting ways and means whereby they might benefit the committee's work, and have reported to the committee comments and criticisms which, in many instances, have been highly constructive.

We believe the time is not far distant when arrangements should be made for an exhibit at industrial expositions, county and state fairs, etc., and if this activity is approved by the committee our field representatives will supervise such exhibits.

Because of the rapid expansion of the work, both of these field representatives are now temporarily assigned to other duties. Mr. Rogers has, for the past three months, been assisting the Director of Building Trades Extension in the preparation of garage specifications which will be referred to later on, and Mr. Bailey has been temporarily assigned to the development of an educational program.

Educational Work

The secretary of the committee, at the 1925 conference at White Sulphur Springs, urged upon the committee the advisability of introducing the subject of sheet steel in the vocational, manual training and technical schools of the country, that sheet steel might enjoy the same advantages as are enjoyed by other competitive materials in the same schools, a field of activity into which sheet steel has not heretofore entered.

It is not the purpose of the committee to teach the students of these schools to become sheet metal workers or sheet metal contractors. The purpose of the work is to create in these future citizens and potential customers, a knowledge of the utility, the beauty and the service of sheet steel for the necessary purposes of industrial and home life. This work must necessarily be educational in character and not in the nature of propaganda or for the benefit of any individual manufacturer or product.

Mr. Bailey is at the present time calling upon the school officials in some of the larger cities of the country and has met with a most flattering reception.

The general plan contemplates placing these various schools on our mailing list to receive the different pieces of literature mailed out by the committee; the preparation of special booklets for the use of these schools, and a series of lectures or educational talks on various subjects pertaining to steel and the products fabricated from it.

In connection with this educational program, we expect at some future meeting to recommend to the committee the preparation of one or more motion pictures for use at conventions and group meetings, and particularly for the purpose of attracting and holding attention in school work.

We are thoroughly convinced that this activity of the committee, while its results cannot be measured in the immediate future, will ultimately result in a very material interest in our product and a marked increase in its use.

Building Trades Extension

This particular department was not contemplated nor provided for under the Trade Extension Plan accepted by the committee, but was a subsequent development which has proven to be one of the most interesting, active and far-reaching activities in which the committee is engaged.

This department, as originally proposed and approved by the committee, was primarily for the purpose of organizing trade interests in the different localities for the purpose of removing from the building codes of the different municipalities such unjust restrictions as had from time to time been inserted in those codes against the use of sheet steel for various purposes in the building trades. We could not and did not foresee at that time the many fields into which this work would extend. I think many of us were under the impression that the cause of many of these restrictions was largely political and that these

restrictions could be removed by the same methods that were employed when they were inserted in the codes. We very soon learned that these restrictions were the result of ignorance of our material in some cases and lack of scientific facts upon which to base arguments against them.

They were also due to the fact that our industry had for years been asleep at the switch, while other industries manufacturing competitive materials have been actively, even if quietly, conducting scientific research and presenting the results of such research in such a manner as to convince legislative bodies as to their soundness.

Dr. V. N. Krivobok, associate in the Bureau of Metallurgical Research at the Carnegie Institute of Technology, recently returned from abroad after visiting educational and technical institutions concerned with the study of metallurgy in England, France and Belgium.

He reports that although there is little money available in England for business activities, they are showing an intense interest in the study of steel, not only the steel industry itself, but the British Government is far ahead of any other nation, including the United States, in its research work in steel and steel products.

The Building Trades Extension Department has given consideration to all communications relative to unsatisfactory service and to the materials which have created sales resistance in the trade. It has been necessary in many instances to conduct investigations and make inquiries for the purpose of overcoming obstacles and technical prejudices against our material and to disseminate facts based upon actual tests.

Under this heading we have investigated the cause for the rusting of eave troughs and conductor pipe and the prejudice which has been created against all galvanized material because of the service failure in this one use. We have found that paint will sometimes blister under certain weather conditions when

applied to galvanized sheets, and it has been necessary to investigate the cause of this action and to determine the particular localities where it most frequently occurs, and these investigations are still in progress.

We have investigated the best paints for use on galvanized roofing and are at the present time cooperating with the Institute of Paint and Varnish Manufacturers for the development of a paint for galvanized sheets which will render satisfactory service under all conditions.

We are cooperating with the National Association of Sheet Metal Contractors to overcome the unsatisfactory results from the use of our product on account of the severe forming processes to which it is sometimes subjected, and with machine manufacturers for the improvement of their machines, to overcome this prejudice against our material.

To Investigate Heat Transmission by Metal Roofs

We have under investigation at the present time the question of heat transmission by metal roofs, which is one of the prejudices which exist against the use of metal roofs. It is our purpose to conduct tests with the United States Bureau of Standards at Washington for the purpose of determining how much of this prejudice is real and how much is imaginary, and what changes in methods of construction should be made, if any, to eliminate this cause of unsatisfactory service.

Similar tests are being made for the purpose of determining the lasting qualities of sheet steel when applied to certain uses, such as the smoke pipe in a warm air furnace, the use of steel underground, etc. The field for work of this character is unlimited and is absolutely necessary if we expect to broaden the market for our product on a sound and lasting basis.

We are thoroughly satisfied as to the lightning resistant qualities of sheet steel roofs when properly grounded, and we are advised that insurance companies are anxious to be convinced of this fact, but they

have adopted the "show me" attitude on this subject and it is incumbent upon us, if we are to receive a preferential rating in insurance, to conduct such tests under the auspices of some recognized and official organization as will convince insurance companies of the accuracy of our claims.

We are constantly called upon to submit designs for structures substituting sheet steel for other ma-

terials in their construction and to suggest and develop new uses for our material in such structures.

We are called upon to review and criticize designs of steel for window frames, window sash, doors, stepladders, stairs, roofing, buildings, window ventilators, packing cases, septic tanks and numerous other articles which have heretofore been constructed of other materials.

(To Be Continued)

Constant Adjustment to New Conditions Price of Being in Race*

Higher Price Must Now Be Paid for Success in Steel Than in Pre-War Days

By A. I. FINDLEY

NO set of men have more cause to know that we are in a new day in business than those engaged in the making, the selling or the using of steel. Every man here has had ample proof in his own experience that the old order has changed and that constant adjustment to new conditions is the price he must pay to stay in the race.

Speaking from the standpoint of business journalism, I know that every editor in our ranks has found that if he is to hold his audience he must be more kinds of an editor than he was before the war. Seeing what the war, the automobile, the radio, the game of golf and the new thirst for amusement have done to the reading time of the average life now being lived, the business paper editor knows well that there must be high propelling power behind his message if he is to lodge it in the thinking of the men to whose business he has devoted himself.

I am sure, also, that every man in a place of responsibility in the steel industry, whether in the making or the marketing of the product, has had to pay a higher price for success in these post-war years than was called for in any period since iron and steel making took a leading

place in American industry. Every man here, I venture to say, will tell you that he is giving vastly more service and working harder in every way today for a living and a profit than ever in his life. The world upheaval has thrust upon the thinking of every progressive business man today economic, political and social problems, a knowledge of which was considered only the most secondary part of his equipment ten years ago.

So much stress has been put upon the farmer's hardships and in industry upon the unfavorable conditions in textiles, leather, fertilizers, and most of all in coal, that little attention has been given to the fact that out of ten major groups of commodities the metal group has shown in the past six years a closest approach to pre-war prices than any other. Iron and steel did not fall so far as copper, it is true, but in view of their great consumption the reduction in iron and steel products is very largely responsible for the low place in the price scale, of the metal group as a whole.

Steel Works Economies

One paragraph in the Steel Corporation's report for 1925 compresses into small space what might be made a long story, of what the steel companies have had to do to meet the competitive conditions of these years since the crash of 1920.

*Address by A. I. Findley, Editor of *The Iron Age*, delivered before members of the Metal Branch of the National Hardware Association in convention at Atlantic City.

I refer to the statement that prices received for the corporation's products in 1925 were \$3.80 a ton less than in 1924 on domestic business and \$4.38 a ton less than in 1924 on foreign business. Gross earnings were \$165,000,000 in 1925, or eight per cent more than in 1924, on a business of 12,340,000 tons of finished material, or 18 per cent more than in 1924. Only by unprecedented economics in production was the showing of 1925 made possible.

Other steel companies found, likewise, that if they were to make money, a large part of it must come through savings; their problem was even harder, seeing that the Steel Corporation has very considerable profits outside of steel making, its advantage being estimated at \$3 to \$4 a ton. In the whole industry plant efficiency has been greatly increased. Better labor performance may be a factor—how much of a factor we do not know. What is known is that every steel producer has been forced by active competition to get its costs down.

Meanwhile not a little has been said about the selling methods of the steel companies. It is admitted that efforts to reduce production costs have been much more successful than efforts to get a market price yielding a fair profit. At the May meeting of the American Iron and Steel Institute the president of the Bethlehem Steel Corporation said that the steel trade can be and should be a better merchant.

At times this year it has seemed as though more insistent effort was being made throughout the industry to stabilize prices and that there was more willingness to refuse business that did not yield a profit. It must be said, however, that on the testimony of some steel manufacturers others are still prone to a certain amount of weakness in the presence of attractive tonnage. Also, if steel market reporters are correctly advised, these "others" are inclined to say the same thing about their accusers. On the whole, as earnings statements for 1926 have been showing, the agitation for more successful salesmanship in steel has been bearing fruit.

Widening Steel Consumption

Probably nothing has been more marked in steel trade developments since the war than the extension of the uses of steel into new channels. What is being done in this direction has a direct bearing on the movement for better selling of steel. Increasing the demand tends to solve the problem of excess capacity. At the same time we do not overlook the tendency to overdo the newer lines of steel manufacture. Cold rolled strip steel is a case in point. Andrew Carnegie once said in the early days of his experience in rolling structural steel, when he wanted to warn off other steel companies that were thinking of going into it: "It is a business of infinite detail." That would deter no one now. Every branch of the business today is one of infinite detail. Nobody expects anything else.

The 2,000,000 tons of rails rolled in American mills in 1887 were nearly 75 per cent of the entire output of finished steel. For the past five years the average production of steel rails, at 2,500,000 tons a year, has been just 9 per cent of the average annual production of rolled steel products. It would take a stout volume to tell the story of this increase of over 1,000 per cent in total steel output since 1887, while steel rails increased only 25 per cent. The average man is astonished to be told that wire products, many of them the most tenuous forms in which steel exists, now represent a larger annual tonnage than steel rails. Food containers call for more than a million tons of steel a year in the form of tin plate. Railroad, structural and automobile outlets are impressive. A skyscraper and a Queensboro bridge are spectacular. But the demand for which the bulk of the new capacity of the country has been built in recent years is rather that which ramifies into hundreds of uses and into thousands of sales to individual buyers.

Great Expansion in Sheets

In no part of the industry has there been any such post-war expansion as in sheets. And bearing out what was said above of the tendency to rush into new lines of

manufacture, no market has seen such ungoverned and at times reckless competition as the sheet market. Demand has doubled since the war—2,100,000 gross tons of black sheets produced in 1919 and 4,100,000 tons in 1925, in addition to 325,000 tons of black plate specialties rolled on tin mills. Yet capacity has kept distressingly in excess of demand.

The sheet industry, however, has been busy making quite another sort of record than that indicated by the price curve. It has outdone every other department of the industry in the development of new outlets for its product. The Sheet Steel Trade Extension Committee in its pamphlet of last year listed more than 650 different articles or classes of products in the manufacture of which sheet steel can be used. Later the committee was advised of 150 additional uses, making a total of 800 articles of common consumption in which sheets are now used or can be used. In their extension work the sheet manufacturers have set an example which producers in other lines may well follow, as some of them are doing.

A Sheet Mill Revolution

Certainly a new spirit of enterprise has come into the sheet steel business. No equal stir and no such forward looking are to be seen in any other department of the industry. Among things that have had more or less publicity, the Extension Committee's work in behalf of a larger consumption of sheets is easily first. But the putting through of the new sheet steel base and differentials was an achievement of first-class significance, and its good fruits will increase as time passes. Sheet steel simplification and the establishment of the master brand for galvanized sheets are other proofs of vitality as well as of vision and venture.

You men in the trade need not be told that these published activities are not the whole story. They belong largely on the commercial side of the business. But on the operating side research and experiment were never more active. Manufacturers look for great developments

in these next few years. So much has been done on the continuous rolling of sheets since the advent of the continuous strip mill that we may not have long to wait for changes in sheet mill practice that may fairly be called revolutionary.

Remarkable Increase in Strip Steel

In this connection the sheet industry is taking a lively interest in the competition it will have from strip steel produced on continuous mills. We have mentioned the doubling of sheet production since 1919. Hot rolled strips increased 140 per cent in the same six years—a production of about 500,000 tons in 1919 and 1,200,000 tons last year. Of this increase of 700,000 tons, 400,000 tons came last year, 1925 showing a gain of no less than 50 per cent over the production of 1924. The use of steel in motor car construction has made a great stride in the past year and in this field the race between the sheet mill and the strip mill grows more and more interesting.

No question has been more often asked in steel trade comment of recent months than "Where is all the steel going?" The manufacturer who finds the largest outlet for his product in the 45 per cent of the steel consumption of 1925 that was outside of railroad, construction and automobile uses should be best able to give the answer, for it is in this 45 per cent that the expansion of the near future will be greatest.

Hand-to-Mouth Buying

So much for the rapidly expanding uses of steel. Scarcely less important and certainly much more talked about in the past year and a half has been the great change that has come over the buying habits of the consumers of steel. Hand-to-mouth buying it has generally been called. Conservative buying and requirement buying are other names for it. The new regime it has forced upon the rolling mill is designated as production for consumption, as against production for makers', merchants' and consumers' stocks. So much has been written about it that time need not be taken in such a gathering as this with de-

tails of its workings. It is found in every line of manufacture and distribution.

What interests us most is the question, "Will it last?" Is the existing buying practice in the steel trade to be regarded as permanent? A recent canvass by the Farmers' Loan & Trust Company, New York, of manufacturers, merchants, railroad executives, economists and others, showed that a large majority of those replying held the opinion that, with some adjustments, the practice of short-term buying will long continue.

In the steel trade short-term buying has solved one problem that for years has plagued producers—that of making contracts binding. The revision of contract prices on a falling market was an abuse that time and again caused serious dislocation, as booms and leaness alternated. In the past year and a half there has been an equalizing of production schedules throughout the year, and a stabilization of prices that have been of benefit to the producer. But much of the hand-to-mouth buying is of a sort that increases the cost of production and distribution. The multiplication of orders involving small-lot rollings is expensive to the mills, and they are being called on in many cases for a service that has long been considered a function of the jobber. Thus far the mills have not been able to pass on to the buyer the cost of this service.

On the other hand those large users of steel who, under the old regime, bought heavily just before the market entered upon one of its up-swings, and who depended for no small share of their profits on their foresight in buying, have chafed not a little under the lock-step markets we have been having in the past two years.

It would be assuming a good deal to say that forward buying of steel has gone by, never to return. Without doubt the belief that a long period of declining prices would follow the great war, and that advances would be exceptional and temporary, has had much to do with starting the habit of short-term

buying. Steel capacity has been and still is in excess of the demand. But the day may come, as it came after the depression of the eighteen-nineties, when the country will wake up to find existing plant unequal to the demand upon it. Then the buyer will seek to buy for some months ahead, as he did in other like periods, and prices will advance as consumers seek to make sure of having a full supply of steel as needed. It may be said, however, there is no likelihood of any repetition of the old-time up-swings for many months.

Growing Steel Imports

The growing volume of iron and steel imports to the United States has attracted much attention in the past year. Compared with the domestic production they are not significant, the imports of semi-finished and finished steel in the first eight months of the year being about 1½ per cent of the total. But on the Pacific Coast, in the southwestern districts tributary to Gulf ports, and at certain Atlantic ports the competition of foreign bars and structural shapes has been a factor constantly to be reckoned with, nearly 150,000 tons of these two products coming in in the first eight months of this year. In the same period the total of rails and splice bars was 43,000 tons. Apart from those just mentioned, miscellaneous steel products imported in the first eight months were about 85,000 tons. Pig iron was 377,000 tons; scrap, 48,000 tons, and cast iron pipe, 47,000 tons. The total of pig iron and all forms of iron and steel was 786,000 tons for the eight months, against 616,000 tons in the like period of 1925.

Today the steel makers of Continental Europe are going after business in this country in earnest. Some of them are getting into this market mainly because of debased currencies, yet Germany with its gold par reichsmark is making its competition increasingly felt. In some cases quoted prices are far below those of domestic mills. These very marked concessions are apparently made to overcome the scruples of American buyers

against bringing in foreign steel. The fact that they yield little or no profit to the foreign seller is reason for the belief that these extreme concessions will not long continue.

More European Steel Coming In

Lately the formation of the syndicate of German, French, Belgian and Luxemburg steel works has caused widespread discussion of its effect on the American steel market. Its first effect on the European market was an advance in finished steel prices ranging from 10 to 15 shillings, the advances applying also to exports. These higher prices have led to predictions in some quarters that the American market will get less foreign steel hereafter. That does not follow. Seeing that on some forms of import steel domestic prices have been cut \$10 a

ton and more, there is still a considerable margin for importers to work on. So far as steel rails are concerned, it is probable that the European agreement, to which Great Britain is a party, will put an end to the invasion of this market. On other steel products a steady inflow from Europe is to be expected, even though it be no considerable percentage of our total consumption. In the past European steel cartels have invariably aimed at the maintenance of prices in home markets so as to permit the concessions necessary to secure a maximum business in the markets of the world. No reason has appeared thus far for expecting a different policy in the operation of the cartel just formed.

(To Be Continued)

it will be seen that there is no scope for any material fall in the selling price; on the other hand, the chances are more in favor of an advance in the quotation following the termination of the British coal strike and the consequent moderate increase in consumption.

I estimate stocks of metal as of October 1st as follows:

	Metric tons
United States	14,200
Canada	2,200
Australia, including unsold shipments afloat	2,200
Germany and Poland.....	5,000
Belgium	2,100
France	1,000
Great Britain	1,200
Scandinavia	200
Far East	500
Elsewhere	1,500
Total	30,100

Zinc Stocks in America at Low Ebb Now

Zinc Situation in Europe Quite Sound—Coal Strike Still On

THE coal strike in Great Britain is proving a much longer drawn out affair than anyone anticipated. With the advent of winter there is a general desire on the part of the miners' leaders to reach an agreement, but, as they lack any policy whatever, the ways and means for reaching a settlement of the dispute are difficult to find.

I stress this coal strike because of its effect on the zinc situation so far as the United Kingdom is concerned. In the first place, it has entirely closed down British zinc smelters, and even when the dispute is over it will be another month or so before the zinc smelters are operating. Secondly, there is the effect the coal stoppage has had on the actual consumption of zinc.

At the outset it almost paralyzed consuming industries, but when once it was apparent that the struggle would be a long one the galvanizers and other large users of zinc made arrangements to carry on as far as possible with the aid of foreign fuel, and in some cases

foreign semi-manufactured materials.

That the efforts of British manufacturers to carry on in such difficult circumstances have been successful is eloquently testified by the importations of slab zinc, which are really little below those of the few months preceding the strike. Consumption has, of course, suffered, on a scale equal to the erstwhile production of 4,000 tons monthly in the United Kingdom.

The Belgian output is fully maintained and production elsewhere is such as to call for no special comment.

Consumption in Europe is satisfactory, having regard to the state of political and industrial affairs. The rolling mills on the Continent are particularly busy and continue to be booked up for three months ahead.

Stocks on this side of the Atlantic are about as low as they can be, so that technically the zinc situation in Europe is quite sound. Reviewing the position from the market angle,

Copper & Brass Research Association Holds Sixth Annual Meeting

The sixth annual meeting of the Copper and Brass Research Association was held at its offices, 25 Broadway, New York City, Thursday, October 14. R. L. Agassiz, president of the Calumet & Hecla Consolidated Copper Company, was re-elected president.

The following were elected members of the Board of Directors, the first nine comprising the executive committee: R. L. Agassiz, president, Calumet & Hecla Consolidated Copper Company; Walter Douglas, president, Phelps Dodge Corporation; C. F. Kelley, president, Anaconda Copper Mining Company; Stephen Birch, president, Kennecott Copper Corporation; Charles Hayden, vice-president, Nevada Consolidated Copper Co., Ray Consolidated Copper Company, Utah Copper Company; John A. Coe, president, The American Brass Company; F. S. Chase, president, Chase Companies, Inc.; Edward H. Binns, president, C. G. Hussey & Company; H. J. Rowland, secretary and sales manager, Rome Brass and Copper Company; J. W. Allen, treasurer,

October 23, 1926

Greene Cananea Copper Company and Inspiration Consolidated Copper Company; Charles F. Ayer, president, Magma Copper Company; Henry S. Bassett, president, Taunton-New Bedford Copper Company; Julian B. Beaty, vice-president, Nichols Copper Company; H. C. Bellinger, vice-president, Chile Exploration Company; J. C. Clendenin, director, Braden Copper Company; Carl F. Dietz, president, Bridgeport Brass Company; B. Goldsmith, president, The National Brass and Copper Company; E. O. Goss, president, Scovill Manufacturing Company; C. V. Jenkins, treasurer, Utah Copper Company, secretary-treasurer, Nevada Consolidated Copper Company, assistant treasurer, Ray Consolidated Copper Company; J. M. Jones, president, Baltimore Tube Company; William Loeb, vice-president American Smelting and Refining Company; H. B. Paull, auditor, Calumet and Arizona Mining Company and New Cornelia Copper Company; R. M. Raymond, director, United Verde Extension Mining Company; W. Parsons Todd, manager Copper Sales, Copper Range Company; J. R. Van Brunt, president, U. T. Hungerford Brass and Copper Company; Sam A. Lewisohn, vice-president and treasurer, Miami Copper Company; C. M. Loeb, president, American Metal Company, Limited; Charles W. Clark, president, United Verde Copper Company.

At a meeting of the board of directors the following officers were elected: President, R. L. Agassiz; vice-presidents, C. F. Kelley, F. S. Chase, Walter Douglas, H. J. Rowland; treasurer, Stephen Birch; secretary, H. H. R. Spofford; manager, W. A. Willis.

H. H. R. Spofford, who for the past four years has been a mechanical engineer in the research department of the Association, was elected secretary to fill the vacancy caused by the resignation of George A. Sloan, effective November 1st.

W. A. Willis, who has directed the association as manager since its inception, was re-elected to that position.

The following new members were admitted to membership during the year:

Nichols Copper Company, United Verde Copper Company, American Metal Company, Ltd., Baltimore Tube Company, Wheeler Condenser and Engineering Company, and Mueller Company.

National Sheet Metal Headquarters to Be Located at Pittsburgh After November 1

W. C. Markle, secretary of the National Association of Sheet Metal Contractors and editor of the *National Sheet Metal Contractor*, has announced that on and after November 1, 1926, the office of the national headquarters will be located at 336 Fourth Avenue, Pittsburgh, Pennsylvania. The office of the *National Sheet Metal Contractor* will also be located in Pittsburgh after November 1.

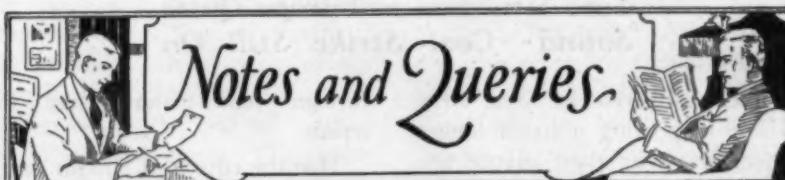
Mr. Markle was appointed to the office of secretary of the National

Association of Sheet Metal Contractors immediately following a meeting of the Board of Directors at Columbus, Ohio, July 30, 1926, upon receipt of the resignation of Mr. Edwin L. Seabrook, who expressed his desire to relinquish the duties of secretary after a period of service of twenty-one years.

The object of the change in location is to facilitate matters for Mr. Markle, whose home and business are located in Pittsburgh.

Aeolus Dickinson Company Folder Explains Operation of New Damper

Aeolus Dickinson Company, 3340-50 South Artesian avenue, Chicago, has issued a four-page folder explaining the method of operation of its recently designed E-Z Damper Griptite Mushroom for use in theaters and auditoriums. This mushroom is designed to vary the volume of air delivered without changing the outlet area.



Repairs for Elevator Formerly Made by Eton and Prince Company
From A. J. Scott, Marine City, Michigan.

Kindly inform me where repairs may be obtained for the elevator formerly manufactured by Eton and Prince Company.

Ans.—Eton and Prince Company is now known as the Prince Elevator Company, 231 West Grand avenue, Chicago, from whom repairs may be obtained.

"Kernan" Furnace
From Robinson Furnace Company, 205 West Lake street, Chicago, Illinois.

Please tell us who makes the "Kernan" Furnace.

Ans.—International Heater Company, Utica, New York, and 1933 Wentworth avenue, Chicago, Illinois.

Steel Stamp and Stencil for Concrete
From R. E. Dill, Alexandria, Nebraska.

Where could I purchase a device

for pressing the words "Patent Applied For" in or on the surface of fresh concrete? Would also like a stencil to use to paint on the surface of hardened concrete.

Ans.—C. H. Hanson Company, 178 North Clark street, Chicago, Illinois.

"Eden" Electric Washer
From Meier Brothers, Henry, Illinois.

Please furnish us with the name and address of the makers of Eden Electric Washer.

Ans.—Gillespie Eden Corporation, 204 West Randolph street, Chicago, Illinois.

Furnace Cleaning Outfit
From J. L. Willey, 1728 East 32nd street, Des Moines, Iowa.

Please advise us who makes furnace cleaning outfits.

Ans.—B. F. Sturtevant Company, Hyde Park, Boston, Massachusetts, and William R. Brown, 319 Main street, Buffalo, New York.

The Editor's Page

Sheet Metal Contractors Must Keep in Touch With National

SOME time ago the sheet metal fraternity in Minneapolis lost a very important fight with the city politicians when the City Council of that city failed to adopt an ordinance prohibiting the use of wooden shingles. The sheet metal men put up a very vigorous fight for this ordinance and, no doubt, have the satisfaction of knowing that they at least tried.

There is little doubt that these sheet metal men encountered the most strenuous opposition from the lumbermen of that section, who would quite naturally fight the adoption of an ordinance detrimental to their business to the last ditch. In trying to have the City Council adopt this ordinance the sheet metal men were doing a public service of inestimable magnitude. They had right on their side and apparently the only reason why they were not successful was that they did not have the strength required sufficiently concentrated to accomplish their purpose.

W. C. Markle, writing in the National Sheet Metal Contractor for October, of which he is the Editor, shows plainly that he is somewhat chagrined that no appeal for assistance had been sent to his office by the Minneapolis sheet metal men. He feels that the very attempt to pass such an ordinance should have brought the sheet metal men together and that these men should not only have presented a solid front upon the scene of action, but they should have called in all of the outside assistance that would have been available to them had they been affiliated with the National Association of Sheet Metal Contractors.

Further, in spite of the fact that the Sheet Steel Trade Extension Committee has repeatedly offered its assistance in getting such ordinances through the various city councils, no appeal was made to the committee for assistance by the Minneapolis men.

Mr. Markle is somewhat at a loss, and quite rightly so, to understand why the Minneapolis men would neglect to avail themselves of all of the assistance they could, in order to get so important a piece of legislation as the one in question through the City Council. Many other sheet metal contractors are, no doubt, likewise wondering why the National Association and the Sheet Steel Trade Extension Committee were not appealed to for assistance by the Minneapolis men. Perhaps they had a good reason. If so, they should not hesitate to air it at once.

Of course it is realized that had they been successful in their single-handed efforts, the greater would have been their personal satisfaction. It is felt, however, that in this instance the Minneapolis men failed to give the National Association a chance to show what it really

can do in work of this kind. The President, the Secretary and other officers, it would seem, have a good cause for complaint.

It is only through close coöperation and support that the work which the sheet metal contractors have to do collectively can be done, and if the contractors do not bring their troubles to the attention of the national organization, they cannot expect to get the assistance which they need. The national officers are always willing and anxious to help, but they cannot do so without opportunity.

Is Artificial Residence Cooling Progressing?

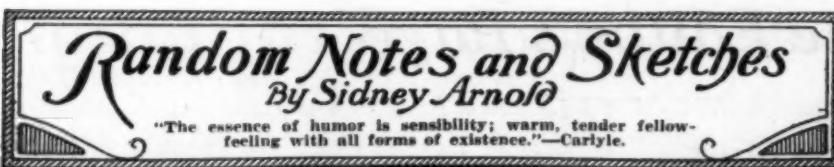
FOR a great many years now the practice of artificially cooling hotels, clubs, theatres and churches has been in vogue. The success which has been met in this field and the fact that the same ducts that are used to heat a building are utilized for cooling it, has caused heating men and manufacturers of artificial cooling devices to seriously consider the possibilities of cooling the ordinary residence in a similar manner.

According to H. A. Stade, Brunswick-Kroeschell Company, Chicago, pioneers in the manufacture of artificial cooling devices, the cooling of a private residence by using the warm cold air ducts of the heating system is entirely practical. "One great obstacle stands in the way of progress in this respect at the present time," said Mr. Stade. "That obstacle is the fact that the public has not yet been educated to demand the cooling of its residences by artificial means."

"Whether the public can be so educated is open to conjecture. There would be added to the cost of the heating system the expense of the refrigerating apparatus at the outset, although, of course, this in itself would not be an insurmountable obstacle, as the refrigerator is as much of a necessity in the household for the preservation of food as the heating system is for the warming of the house. The cost of cooling the house would be about equal to the cost of heating it; that is, the operating expense of the two systems would be about the same."

No doubt the day will come when the warm air furnace installer will be called in to install the combination heating and cooling system, just as he is now called in to install the heating system. There is no reason why the furnace installer should not look forward to getting this work should the demand for it be brought about.

It would be interesting to learn whether warm air furnace installers have sounded out their public on this subject with the object of finding out how much thought the public really have given the idea. If you have had any experience, let us know about it.



"Dauber may be a great artist," said the sweet young thing, "but he certainly has a peculiar way of painting his pictures."

"Why, how is that?" asked her friend.

"Well, when I visited his studio recently and asked him about his work, he told me he painted his greatest pictures on an empty stomach."

* * *

A business man of Oakland who has many relatives well enough off, but anxious to inherit his even greater fortune, recently called in his lawyer to draw up his will. When the document was completed the client asked, "Well, Thompson, have you fixed this thing as I want it?" "I have done my best," said the lawyer anxiously. "Then there is another thing I want to ask you," continued the wealthy Oaklander, "as man to man, who do you think stands the best chance of getting my property when I cash in?"

* * *

When the late General Horace Porter was manager of the Pullman Company he got a letter one day from an army officer who said that the Pullman car which carried him from Jersey City to Long Branch had not been properly swept and dusted. General Porter waste-basketed the letter; also the second, the third, and the fourth. But the fifth was so violent that General Porter dictated the following reply:

"Sirs: We have run the train off the track, burned the cars, shot the conductor, hanged the porter, and discontinued the line. Hoping that this will be satisfactory, I remain."

General Porter's action in this instance might be used with some success by warm air furnace friends of mine who have not yet found it advisable to adopt the customer-is-always-right policy.

"When I recovered from the effects of the opiate," said Harvey Manny, of the Robinson Furnace Company, "I found myself in a darkened room, and wondered where I was and what it was all about. The kindly-featured nurse quickly discovered that my consciousness had returned, and came to my bedside, and then I remembered everything.

"But why the dark room?" I inquired of her. "It was early morning when they operated on me, but now it can't be night."

"No, it isn't," said the nurse seriously, "but we were afraid of the shock you might get."

"Why, what shock?"

"Well, there was a big fire just across the street, and we were afraid if you awoke and saw the flames you might think that the operation hadn't been successful."

* * *

The minister had just preached his farewell sermon to the congregation with whom he had had much trouble.

"How beautiful!" said Roy Walker to one of the deacons, "and how appropriate for a farewell sermon!"

"Think so?" said the deacon gruffly.

"Why, yes. What better text could he find than, 'In my Father's house are many mansions. . . . I go to prepare a place for you.' By the way, where is he going?"

The deacon smiled sourly as he answered: "He becomes chaplain of the State penitentiary."

* * *

After many long years they met again, the old tragedian and the dear old lady who was once a lovely Rosalind. And since they had been sweethearts once he embraced her. Then he started back. "Woman," he cried, "what's that noise you're making?" She trembled at the anger in his voice. "It's only

asthma," she faltered. With a sigh of relief he turned and mopped his brow. "Heavens!" he murmured, "I thought you were hissing me."

* * *

Tim Casey and his friend, Pat Cline,

Were blasting rock one day,
When the blast went off and blew
poor Tim

Clear to the Milky Way.
When Tim came down he came so
fast

His soul was left behind;
An arm and leg were all of him
That they could ever find.
The foreman said to Pat, "Go home
And see Tim's poor old wife,
And gently break the news to her
That Tim has lost his life."

So Pat went sadly to Tim's home,
And when he saw Tim's wife he
cried,

"Did Casey have insurance on his
life?"

"You bet yer life he has," says
she.

"Hurrah for that," says Pat;
"We can't collect your husband,
But we'll help you collect that!"

* * *

A Stag Story

We stalked the stag
A couple o' mile,
Thru brush an' stubble an' snow;
An' never a shot we got at his hide,
For th' wind from us did blow.

We stalked him fore,
We stalked him aft,
We crawled on our bellies in slush;
An' wunst we saw his breath like steam
An' our hearts just turned to mush.

We could not shoot
As he lay at rest,
Says my pal "we must give him a
show";
An' I says "let's wait till he's rested
up"—
But shot couldn't catch him on the
go.

We caught him fair
By the edge of a stream—
He had slipped an' cracked a leg;
An' th' look he gave us was mild an'
proud—
He wusn't th' kind to beg.

Pal threw a lasso
Around his horns
An' we dragged him over th' land;
An' pal who is clever at doctorin',
Had him feedin' soon from his hand

We stayed a matter
Of, say six weeks,
A-nussin' th' splendid brute.
Th' fellers laughed an' left us there—
I'm tellin' th' gospel trut'.
—C. B. Stearns.

What Are the Window Ventilation Proponents Thinking Of?

Why a Little Knowledge Is a Dangerous Thing

WINDOW ventilation, it appears, has received an undue amount of consideration from the heads of school boards and from the American Public Health Association. The resolutions on this subject passed at St. Louis last summer indicates how a superficial knowledge of this subject can lead men in authority to do things that are ac-

ficial but are positively harmful to the health of school children, and

"Whereas, in the light of current knowledge, the supply of as large an air volume in school rooms as 30 cu. ft. per minute, per capita, is necessarily accompanied with dangerous overheating of the school room in order to avoid resulting drafts, and

evidence of misunderstanding, else it would not have been passed in the very crude and apparently unbalanced form in which it is worded.

I feel like making the charge that the St. Louis meeting allowed itself to be stampeded by selfish and interested parties seeking, by condemnation of all progress during many years of study, to let down the bars for exploitation of new proprietary devices.

We find this sort of thing happening frequently in legislative lobbies. The resolution gives a misleading impression when it implies that furnishing as large a volume as thirty cubic feet per capita per minute is necessarily accompanied by overheating of the rooms occupied by the students of a public school.

The truth is that ventilating means cooling even more than it means heating, since we must remove body heat, sun heat, and surplus direct radiator heat, as well as boiler room heat (when classrooms are directly over boilers). We cannot use air much cooler than that already in the room, for cooling the room, and so we often find 30 cu. ft. per capita per minute an insufficient volume.

There are no laws that I can find which require ozonation or chemical treatment of air. Going out of the way to include a process which the St. Louis board of education at least feels is valuable, when such a process has no effect on either of the "resolveds," shows a definite maliciousness and lack of fair balance.

The first of the "resolveds" appears to recommend a non-proprietary method, but those of us who have had experience know that since no disinterested experienced engineer would design such a system of ventilation, the ordinary owner would be at the mercy of the

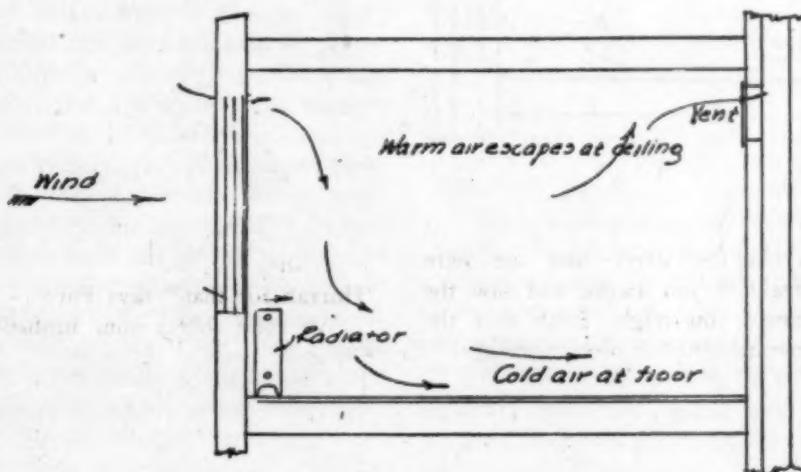


Figure 1

tually detrimental to the health of the very people they are trying to protect.

In a very didactic article on the dangers of window ventilation which appeared in a recent issue of *Domestic Engineering*, Mr. Samuel R. Lewis tells how and why "Half-Knowledge Is Dangerous in Ventilation." Every sheet metal contractor or warm air furnace installer who is interested in the future of his business should read this article. He will profit greatly thereby. The article follows:

The American Public Health Association passed the following resolution at St. Louis last summer:

"Whereas, hundreds of thousands of dollars are wasted every year on this continent in the installation and operation of systems of school ventilation which are not only not bene-

"Whereas, the use of ozone and other chemicals for treating school room air has little or no scientific justification and little or no practical value;

R e s o l v e d, That ventilating school rooms by fresh untreated outdoor air, admitted at windows with gravity exhaust ducts for removing ventilated air from near ceiling, is the most generally satisfactory for schools;

R e s o l v e d, That state laws and city regulations interfering with such scientific and economical methods of school ventilation should be repealed in the interest of the public health."

This has been misunderstood by many people, and must have been misunderstood by the members of the association who passed it.

It seems to me to bear *prima facie*

salesman for some more or less patented arrangements.

The second of the "resolveds" calls for repeal of all laws and regulations which interfere with ventilation by windows, and not for repeal of what apparently was in view when the second "Whereas"

ings, and the more do we find mechanical ventilation, after all, vindicated.

The New York City schools have not gone to direct radiation and window ventilation for classrooms. No state laws would stop them for long if such ventilation were proved

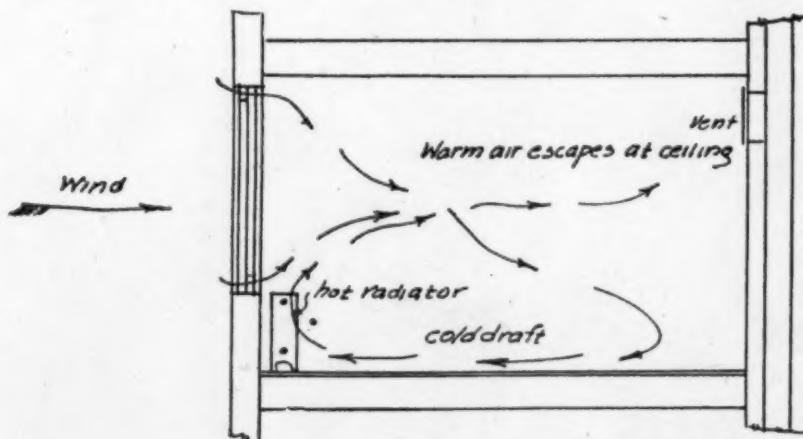


Figure 2

was written, a smaller compulsory requirement than 30 cu. ft. per minute per capita.

I wonder if any of the people who voted for this resolution had a chance to analyze it in the light of these reflections?

I have had some experience with school house ventilation, and with the drafting and enforcement of compulsory ventilation laws.

I have nothing to sell in the way of fans or systems of ventilation. While I receive some professional compensation for design of ventilating plants, the basic service I perform is a heating service, and if all fans are eliminated I need not worry.

Where Half-Knowledge Is Dangerous

I do view with alarm the harm that can come to little children from further misunderstanding by the public of this supposedly solemn and thoroughly deliberate pronouncement.

The New York state commission on ventilation did not have time or money to complete its work. The reports are admitted by some of its own members to be inconclusive. The more we learn about the observations of the commission, the less confidence we have in the find-

replaced by cooler air. Air clings and drags much after the manner of cold molasses around a spoon. It leaks through every physical structure, sometimes in appalling volumes. Cold air striking human beings is uncomfortable.

I believe that if much cold air strikes the back of my head and neck I will have a serious illness, called a bad cold.

So ventilation may be said to be a fearsome thing. I cannot work very effective unless I am comfortable. If the floor is cold, my feet get cold and I am not doing effective work. If I sit near a large window and it is cold outside, I will feel a down draft of cold air which falls because its heat has been lost against the cold glass. If the window is opened and is on the windward side, giving a condition which the American Public Health Association suggests can be obtained by providing "gravity flues," cold air will enter, finding its way to the floor around my body, eventually chilling the floor and giving me cold feet. (See Fig. 1.)

If a radiator is placed below the window, it will warm the air around it, causing a fountain-like jet of warm air to rise above it, while the current of air to replace that which

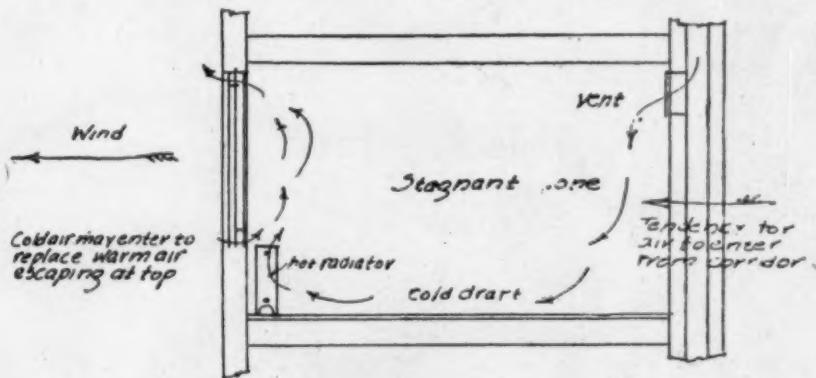


Figure 3

any man can test for himself and to his own satisfaction regarding this much discussed question of ventilation.

Ventilation must mean heating and cooling as well as air changing, for these are all well nigh inseparable. Air is wonderfully elastic; that which is warm expands and rises above its surroundings, and is

rises causes another cool draft around my feet. (See Fig. 2.)

If I am within say two or three feet of this radiator, my head and shoulders feel the radiant heat emanating from the radiator. Radiant heat does not heat air but does warm my skin, and by comparison accentuates the misery due to feet in a cold draft.

Let the reader, before the 1926-1927 cold weather passes, try sitting close to an open window in his own home or office, on the windward side, on a chilly day. Let him remember that the American Public Health Association, in its kindly paternalism is trying to arrange for his own dear little child to be chained to a piece of furniture, close to a great hot radiator below a leaky school room window, without power or right to close the window, or to turn off the radiator, or to move further away.

Let the reader observe the dust and soot on the window sills and on the walls around the windows in his home or office, even though good housekeeping may be in effect. What about the curtains which hang in front of the bedroom window which is open nights?

Some child, under recommendations of the American Public Health Association, will have to stay in front of an open window. His little face and hair and collar will be pretty grimy every night. There is plenty of testimony that he will have the sniffles pretty steadily. On post mortem, his lung tissues may show considerable soot staining.

The conditions I have just suggested apply when the wind is toward the window, or when the gravity vent flues get warm enough to pull, and so cause outside air to enter.

Let the reader try opening a window in his own kitchen toward the point from which the wind comes, then leaving the kitchen door open into the corridor and so on into a room on the leeward side of the building. If cabbage or onions, or some self aggrandizing believer in publicity is cooking and he will sit by the open window on the leeward side of the house, he will understand how, with my nose as guide, I found the location of the toilet rooms in school after school in Evanston, Ill., when I investigated window-ventilated buildings. (See Fig. 3.)

Will the A. P. H. A. Answer This Question?

The effect of wind pressure on every building is such that there is

always a draft IN at the windows, top or bottom, on the side towards the wind and a draft OUT on the leeward side.

Just how the Public Health Association is going to get any fresh air into the leeward rooms is not disclosed. It is always difficult and generally is impossible to make any

chilled by leakage and unless it can escape without being cut off mechanically by the force of a gale of cold air across its top.

One may often see a straight top steel stack leaking smoke out at every joint while a cross wind at its top prevents the chimney contents from escaping. (See Fig. 4.)

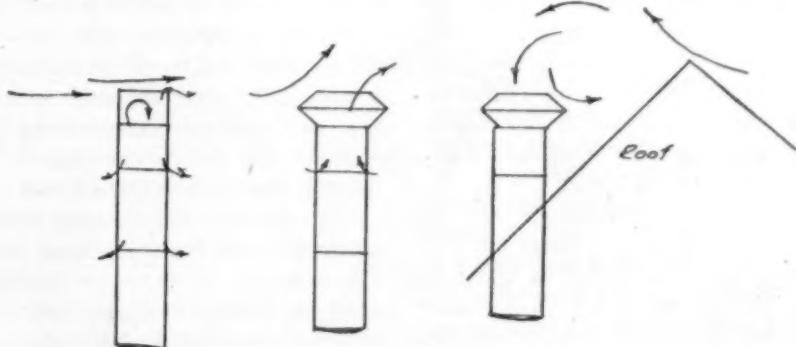


Figure 4

air enter a window on the leeward side of any house.

Yet every building has a constantly varying leeward side.

Anyone who knows anything about transporting air knows that it requires considerable energy to handle this clinging, yielding, elusive material.

It has been proved conclusively that no chimney nor gravity vent flue will move air (have a draft) unless the column of air inside the chimney is lighter (which means warmer) than the air around the outside. It has been proved that as the temperature outside a house gets warmer and approaches nearer the temperature inside, a chimney has less draft. All chimneys draw DOWN instead of up in hot weather, unless intense heat is applied to their bases.

It has also been proved that air can be handled in quantities with an expenditure of less energy (which is the same as heat) by a fan, than by a chimney.

No chimney is any good as a handler of air unless it extends straight up well above all roofs, towers, trees, etc., and unless it is of tight, warm construction, and unless it has a top to divert the wind up, so that the continually heated column of air which emerges from it can get away without being diluted and

Anyone familiar with building construction will prove that a fan can be purchased for much less initial investment than will be required for the massive towers of chimneys needed for the gravity vent flues of the American Public Health Association.

Thus, in so far as the American Public Health Association says that the installation of fans and the operation of fans is wasteful to the extent of hundreds of thousands of dollars, as compared with the cost of gravity vent flues, and operation of gravity vent flues, the American Public Health Association makes a misleading statement.

(To Be Continued)

William Scott Says Job on Page 121, October 16, Will Work

Referring to the warm air furnace installation shown on pages 120 and 121 of AMERICAN ARTISAN for October 16, 1926, William Scott, 201 Eighth Avenue, Juniata, Pennsylvania, says: "The installation will work, but could be improved, unless conditions in the basement prevent."

"The warm air furnace manufacturer who turned the job down in the first instance did not know his business."

National Hardware Men Convene at Atlantic City

Address and Discussions Reveal Hardware Industry in Healthy Condition

HARDWARE merchandising, in all of its many phases, was on parade at the Ambassador Hotel, Atlantic City, this week, it being the occasion of the joint convention of the National Hardware Association and the American Hardware Manufacturers' Association.

Hardware men from all parts of the country began to arrive in Atlantic City as early as Sunday morning, October 17. The Automotive Accessories branch meeting of the National Hardware Association was held the first thing Monday morning. By Monday night the lobby of the Ambassador Hotel teemed with activity and conviviality ran rampant.

The convention proper opened Tuesday morning with an address by acting President W. H. Donlevy.

**Annual Address of Acting President
W. H. Dunlevy**

Attendance upon our annual conventions may be likened to a brief post-graduate course in business science.

In these intensive competitive days, progressive business men have neither the desire nor willingness to spend money and effort coming to a convention unless they can derive some benefit therefrom. The large attendance at each of our executive sessions, and the general participation in the discussions prove our members come for a serious purpose.

The three great branches of the Hardware Industry have their own peculiar problems—and fortunately each branch has an organization worthy of it, to aid in their solution.

In attempting to solve our problems, we should approach them in a dispassionate mood. Nothing can be gained nor can we profit by harsh criticism or denunciation. A satisfactory solution can never be attained by these methods. Suspicious distrust and antagonisms should

give way to a spirit of mutual friendship and co-operation.

Modern conditions under which we now live, and recent scientific inventions, have created new industries and new policies and those of us who do not adjust ourselves thereto must fall by the wayside.

The catalog houses and chain stores are here to stay. Their one feature mostly to be envied is their ability to do such a large volume on a strictly cash basis. Wholesalers and retailers both should endeavor to discover legitimate and efficient methods to meet this competition.

We are assembled in a time of general prosperity and we may briefly touch upon those fundamental factors which largely contribute to it.

Iron and steel has always been and still is one of the key industries of the country. During the first half of the year, the steel manufacturers were able to maintain an average of 87 per cent ingot output—a percentage never before equaled. Of course a large portion

of this output went to the railroads, buildings and structural lines and automobile manufacturers, but an amount not insignificant found its way into the hands of the ultimate consumer in the shape of the many varieties of hardware.

Bank clearings and car loadings have been of record proportions.

Agriculture is one of the main props upon which we depend for national prosperity and it is gratifying to note the situation of the farmer is somewhat improved and his purchasing power is increasing. A recent invention of great value to the farmer and of which many have taken advantage is a machine which cuts and threshes the grain while still standing in the field, which is practically one operation.

If the Government can do anything to allay the so-called agricultural discontent, the whole country would approve, but any attempt to make it a strictly political question, or to violate the law of supply and demand by price-fixing, would end disastrously for all concerned.



Brace Hayden
Vice President

Building construction continues on a large scale throughout the country, distributing large sums in wages and consuming much material, including hardware and furnishings.

The present method of distribution of hardware—viz., from manufacturer to wholesaler—wholesaler to retailer has been in vogue since the industry was in its infancy. It is both the natural and logical method, and I believe will continue indefinitely.

Those wholesalers who have made earnest efforts to ascertain the requirements of the trade and territory they serve and who carry the requisite diversified stocks, are, by reason of the efficient transportation facilities and delivery systems now prevailing, rendering the best service in the history of the industry.

As business men we are, or should be, interested in everything pertaining to good government. Many communities are suffering today from high costs of local government, resulting in exceedingly high taxes, which have become burdensome.

It is pleasing to note that business men in many localities have become aroused at this unsatisfactory condition and have started a movement towards reducing the cost of municipal government, and a consequent reduction in taxes.

We should encourage this action and hope the time soon will come when every dollar spent by a city or state will receive its full equivalent in value—in merchandise, service or efficiency.

Our sane and conservative National Administration at Washington by its economy program, resulting in paying off more than six billion dollars of the public debt and one and three-fourths billions reduction of annual taxes, shows what can be done and is a shining example that should be heeded by every local politician and officeholder in the country.

We heartily endorse the successful efforts of Secretary Hoover in his campaign of eliminating waste

by simplifying sizes, patterns, styles, etc., in many lines.

We recognize and applaud the splendid educational work that has been done by the National Retail Hardware Association. This is one of the outstanding progressive associations of the country, and we wish them abundant success in their efforts in the future.

Our relations with our sister organization, The American Hardware Manufacturers' Association, are friendly and cordial.

I desire to pay a word of tribute to the Trade Press. These progressive journals are ably edited, and are an educational factor of much value.

There has been an absence of violent fluctuations in prices during the year, making it possible to conduct business on a more even keel, although unseasonable weather has retarded the sales of some lines, resulting in a carry-over for another year.

While we shall always have here and there a few pessimists, there is at present no apparent reason for paying any particular attention to them.

With the finest financial system that has ever been devised—with the agricultural situation improving—with the labor fully and contentedly employed—we can face the future with a great degree of confidence, and can safely pitch our tents in the camp of the optimists and give thanks we are living in the most highly favored nation on the globe.

Following the address by Walter H. Donlevy, acting president of the National Hardware Association, S. Horace Disston, President of the American Hardware Manufacturers' Association, made his annual address of welcome to the members assembled. Charles F. Rockwell, Secretary-Treasurer of the American Hardware Manufacturers' Association, was introduced at this time also.

On Wednesday morning during the executive session of the National Hardware Association an appreciation of the late T. James Fern-

ley, by Charles H. Ireland, was read.

An Appreciation of T. James Fernley

"Surely, in the midst of life, we are in death, and to the thoughtful mind on an occasion, such as we face today, the recurrent question of the seer is as patent today as it was in the time of Job. 'If a man die, shall he live again?' Hence, we have paused in the midst of our official duty to pay this personal tribute to the memory of an invaluable servant and an honored official of this organization, and with bowed heads and saddened hearts accept with resignation the dispensation of a higher and wiser will than ours, believing in a Divine Guidance and an unerring and all prevailing Providence.

"The subject of our appreciation, T. James Fernley, was the honored and efficient Secretary of this Association from its organization in 1894 until he passed away at his home in Philadelphia at 5:30 o'clock on Monday morning, October 17, 1926.

"As an executive he had few equals. Endowed by nature with a splendid physical frame, broad shouldered, deep chested, he was capable of great physical endurance and of carrying on when those less richly endowed would have been compelled by nature to desist, and it can truthfully be said of him that he brought to the service of this Association all of the powers of this splendid equipment.

"Mentally, he was splendidly endowed, and by diligent application and devoted adherence to the duties of his office, he proved himself not only competent for the arduous duties of his office, but was in every respect wise in his discriminations of what was best for the interest of this Association. Socially he was genial in his disposition, companionable in his relationship to the members of this Association; by some, he was considered brusque, particularly towards those whom he considered as his opponents, but he was always loyal to his friends—a devoted husband—an affectionate father, and that home which sits today in the shadow of a great grief

was the chief object of his deepest solicitude, and it was in this sphere that his qualities shone with the greatest splendor.

"Faults, surely, he had some—that this was true, his most ardent friends would not deny, but his virtues were so superior to his faults that the former were forgotten in the preponderance of the latter, and it can be truthfully said that all of these splendid powers he dedicated unstintedly to the welfare of this Association.

"Now that his work is finished, the result of his life's efforts loom up as a justification of his life, and surely it is sufficient justification for any man's life to have been the organizer and promoter of such a successful organization as the National Hardware Jobbers' Association.

"And without disparagement to any of those who were active in the formation of this organization, it is only just to ascribe to Mr. Fernley the leading influence in the establishment of this splendid organization.

"As when a mighty oak is riven in the midst of the forest it carries confusion and distress to the surrounding growth as it falls to its resting place, even so, this man of mighty proportions and marvelous achievement leaves us, his associates, stricken and confused by his sudden departure, and hence we pause today to get our bearings, to knit together the broken threads of life and to take up the past where he laid it down. We face the future with an unclouded faith, that upon a foundation so securely laid by our esteemed and departed Secretary, it behooves us to strive with all of our powers to build a structure of enduring worth and thus prove our capacity to follow where he and his co-workers have pointed the way towards a future career of commercial usefulness, we shall continue as it was begun one of the finest of American trade organizations.

"To the wife of his bosom, the children of his household, the tenderest sympathy of all the members

of this Association go out this morning commanding them to the grace of Him who hath bidden a broken hearted world to look unto Him for peace."

At the Wednesday afternoon session several interesting addresses were presented, among which was one by H. W. Conde, of the W. W. Conde Hardware Company, Watertown, New York. This address will be published in a later issue of AMERICAN ARTISAN.

The afternoon session was open to members of the American Hardware Manufacturers' Association, and many of these men attended.

A discussion of the remedies for the abuse of guarantees was incor-

wholesaler of missionary salesmen, on what gross margin should the wholesaler secure on staple items and how can an individual wholesaler eliminate unnecessary sizes, styles and varieties?

The election of officers resulted as follows:

President, W. H. Donlevy; Vice-President, Brace Hayden.

Elections for the Executive Committee resulted as follows: Three-year term, Paul A. Griffith, John T. Martindale and G. S. Wilson; two-year term, Charles H. Black, Walker D. Stewart; one-year term, Frank A. Bare, D. M. Fulton.

Atlantic City was favored as the next meeting place.

Resolutions of thanks were voted to the officers, the executive committee, to Carl White, Felix H. Levy, H. R. Beatty, H. J. Funk, J. E. Stone, Dr. Frank D. Payne, S. Horace Disston and Dr. Edward Yates. Resolutions of thanks were also offered to the various committees and the association's appreciation went to acting president W. H. Donlevy and to A. H. Nichols for presiding over the sessions of the Metal Branch and Accessories meetings.

A silver piece was presented to the family of the late President John M. Townley.

The Chicago Hardware Special, operated by the Pennsylvania Railroad, contained a very merry crowd of hardwarites. The train, which left the Chicago Union Station at 1 p. m. Sunday, October 17, contained about 125 people in all. Many were the words of praise heard of the equipment and the service and hospitality of the Pennsylvania System and employees. J. A. Oliver, of the passenger department of the road, deserves particular mention for his untiring efforts to keep everybody happy on the trip.

A delay of four hours was experienced on the way to Atlantic City because of a freight train which had come to grief along the route of the Special. No one seemed to mind the delay, however, for the meals were excellent and other accommodations could not have been improved upon.



T. James Fernley

porated into the proceedings of the Thursday morning session.

R. W. Standart, Jr., Vice President and Treasurer of Standart Brothers Hardware Corporation, Detroit, Michigan, gave an address on the best method of disposing of slow selling lines. The address will be published in full in a later issue.

The Thursday afternoon session of the American Hardware Manufacturers was open to the members of the National Hardware Association. Wholesalers and manufacturers were called upon to participate in the general discussion of the subject "Under What Circumstances Does Increased Turnover Become Unprofitable."

The Metal Branch meeting was also held on Thursday afternoon.

Friday morning was consumed with discussions on the value to the

TAYLOR'S Two Leading Brands

Thousands of sheet metal men know our famous **HAND MADE** roofing tin—The highest quality, longest lived roofing tin in the world. Formerly called "Taylor's Old Style," but since 1905, known all over the U. S. A. as

TARGET AND ARROW ROOFING TIN

But there are times when competition is so keen that even the slight additional cost of Target and Arrow prevents its use. For this reason we have gotten out the best machine made plate that it is possible to make. It is known as

TAYLOR'S EXTRA COATED 40 lb. Copper Bearing O. H.

Our distributors, located in all parts of the United States, carry ample stocks of both these brands of plate. It will pay you to get their quotations today.

N. & G. TAYLOR COMPANY
300 CHESTNUT STREET
PHILADELPHIA, PA.

Headquarters for Good Roofing Tin Since 1810

Accessories Branch Meeting Shows Good Automotive Business

Nichols Says Wholesaler Is a Necessity in Twentieth Century Trade

THE meeting of the Accessories Branch of the National Hardware Association, in convention at Atlantic City, was called to order at 10:45 o'clock a. m. by acting President W. H. Donlevy of the National Hardware Association. He said:

"As acting president of the association it gives me a great deal of pleasure to greet you at your opening session. The history of the automobile is one of the wonders of modern civilization. Its phenomenal growth has been responsible for your industry, and the great growth of the sales. I have been told that the annual sales of accessories by some of the members runs into large figures. That would indicate to my mind that the wholesale hardware merchant is the legitimate channel for the distribution of your products.

"The National Hardware Association is very proud of the growth and success of this branch. If there are any members of the association who have not added the accessories line to their business it seems to me that they are missing a golden opportunity to take on a fascinating as well as a profitable addition to their business."

Chairman A. H. Nichols took charge of the meeting from then on.

Chairman Nichols said: "This is a rather sad meeting perhaps, to some of us at this particular time, as our secretary, whom you all knew and knew well, Mr. T. James Fernley, passed away this morning at 6:30 o'clock. We who have been with Mr. Fernley on occasions of this kind feel this very keenly. To some of us Mr. Fernley seemed stern at times. We who have worked with him, lived with him, and those who knew him best loved him the most. Only those who were really familiar with the heart of T. J. Fernley knew him as he really was."

The audience rose to their feet

and were silent for a few moments.

Mr. Nichols resumed his remarks as follows:

"We look back over the past year with a great deal of pleasure for it is plain that the manufacturing output exceeds that of 1923. Our exports have been greater than in 1924, railroads have handled their greatest volume during the past year and the banking business is more prosperous than ever before. Nearly every business review is sending out not only an optimistic note for fall business, but is commenting on the remarkable business during the past few months.

"The distribution of merchandise is a question that in spite of careful study seems to become more unsatisfactory with almost each day's business, and without a doubt the most important problem for you manufacturers, and we wholesalers at this meeting is to find a permanent solution for the unprofitable condition of the distributors.

"As business men we are interested in friendly relations. Experience has taught us that good will in business is a tremendous asset.

"Competition will always be with us. Manufacturers will compete with manufacturers. Wholesalers with wholesalers, and retailers with retailers. But today competition does not stop there. Individuals are competing with each other. The producer is competing with the retailer and the manufacturer is constantly competing with the wholesaler and at the same time everyone is demanding better service with those they deal with, while the great thought of turnover or increased volume is causing many to sell at a much lower margin of profit.

"We perhaps fully realize that we are doing business in the twentieth century, but really are we able to get our thoughts beyond the nineteenth century? Today we are granting bonuses and encouraging

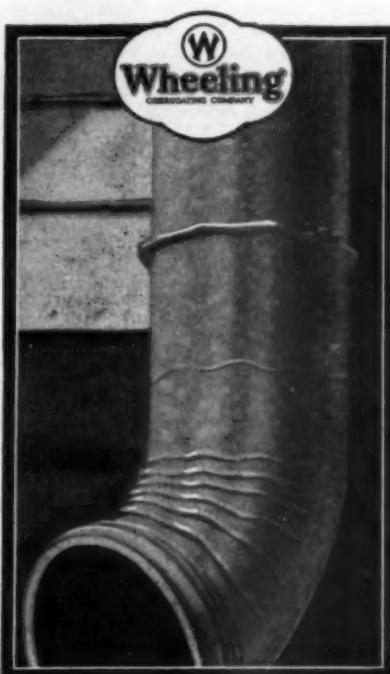
profit sharing with our employees, but have we not lost the broader vision in our business methods? Do we fully realize that the spirit of co-operation is the real foundation of today's advanced business methods? Possibly a great deal of the unsatisfactory conditions of today are caused from the fact that we do not recognize the value of the human element in business. I cannot help but blame the manufacturer very largely for the present unsatisfactory condition of the merchandisers. The wholesaler is an absolute necessity. Yet he is at the mercy of those who are able to dictate to him and when the manufacturer under the pretext of increased volume ignores the wholesaler or when he comes out in competition with the wholesaler he is causing a most unsatisfactory business condition to exist.

"The retailer who is able to purchase direct immediately gives to his customers the benefit of the lower price he has obtained and thus causes the general public to realize something of the large margin between the manufacturers cost and the price paid by the consumer. In view of this fact we cannot blame the inexperienced business man—the final purchaser, for his lack of co-operation and desire to ignore the merchandiser.

"There has been no line of business blessed as the hardware business has been. Charles Schwab will tell you this is the age of steel, while Thomas Edison will claim it is the age of electricity, both industries being a part of the hardware business.

I found a few statistics the other day that I think will be interesting to you. According to records there were produced in the United States and Canada in 1925, 4,336,754 automobiles and motor trucks. The wholesale value being \$4,210,175,965. The manufacturing of automobiles gave employment directly and indirectly to 3,445,642 people and required an investment of \$1,888,028,810. The record shows that in the entire world there were in 1925 24,564,574 motor vehicles in operation, nearly 80 per cent of these being operated in the United

Hand Dipping in Pure Molten Zinc



THIS quarter-century-old process has given Wheeling Hand Dipped Conductor Pipe the preference with those discerning builders who desire the utmost in quality and economy. It was in Wheeling factories that this slow but sure method of thoroughly coating surfaces, edges and seams was first applied to Conductor Pipe.

Today, orders for Wheeling Conductor Pipe specify "Hand Dipped in Pure Molten Zinc"—a tribute to materials, workmanship and the slower but more thorough hand dipping process.

The base for Wheeling Hand Dipped Conductor Pipe is Ohio Metal (Open Hearth

Copper Alloy) coated with a combination of lead and tin before forming. Ohio Metal is itself highly rust-resisting and is the ideal base for so important a product as conductor.

The combination of this base and the extra heavy coating makes Wheeling Hand Dipped Conductor Pipe proof against age, weather, rust and corrosion. Surfaces, edges and seams are imbedded in a thick impenetrable coating three times as thick as any coating heretofore possible. Here is real Conductor Pipe economy and satisfaction.

A sample for close inspection will be gladly mailed on request.

WHEELING CORRUGATING COMPANY, WHEELING, W. VA.

Wheeling

HAND DIPPED
Zinc Coated
CONDUCTOR

States for which there was paid into the different state treasuries \$260,619,621 in annual licenses.

"It is claimed the average life of a car is about eight years, and that in 1925 there were 1,503,127 cars scrapped. And yet the motor driven vehicle is only in its infancy.

"Motor busses are today covering 232,000 miles of our highways which require 28,145 busses, and the railroads today recognize the motor truck as their strongest competitor.

"The radio market surely has a wonderful future, but must be developed. Soon nearly every farm house will have a radio.

"The hardware merchant is the best outlet for the radio and especially in the smaller cities and towns. While the wholesale hardware dealer's salesman makes regular calls every week or two it enables him to cover the territory more often and at a far less sales expense.

"Then we have the thousand and one other articles operated by electricity that rightly belong to the hardware dealer and gives us all the opportunity of increasing our sales and profit if we have the proper co-operation; and when we remember that the wholesale hardware dealers employ about 11,000 traveling salesmen covering every nook and corner of our land, it causes me to believe that we, as hardware dealers and accessory manufacturers should at this meeting combine our efforts for the good of both."



American Welding Society, Annual Fall Meeting, Buffalo, New York, November 17, 18 and 19, 1926. Carl D. Miller, secretary, Burke Electric Company, 508 Morgan Building, Buffalo.

National Warm Air Heating and Ventilating Association mid-year meeting, Urbana, Illinois, December 1 and 2, 1926. Urbana-Lincoln Hotel. Allen W. Williams, secretary, 174 East Long Street, Columbus, Ohio.

Western Warm Air Furnace & Supply Association meeting, Hotel Sherman, Chicago, December 3 and 4, 1926. John H. Hussie, 2407 Cuming Street, Omaha, Nebraska, Secretary.

West Virginia Hardware Association Convention and Exhibition, Parkersburg,

January 18, 19, 20, 21, 1927. James B. Carson, secretary, 411 Mutual Home Bldg., Dayton, Ohio.

Texas Sheet Metal Contractors' Association, Hotel Adolphus, Dallas, Texas, April 24 and 25. Harry Stanyer, Secretary-Treasurer, 2422 Alamo Street, Dallas.

National Association of Sheet Metal Contractors, Adolphus Hotel, Dallas, Texas, April 26, 27, 28 and 29, 1927. W. C. Markle, Secretary, 850 West North Avenue, Pittsburgh, Pennsylvania.

Mountain States Hardware and Implement Association Convention, Denver, January 18, 19, 20, 1927. W. O. McAllister, Secretary, P. O. Box 513, Boulder.

Texas Hardware & Implement Association Convention, Dallas, Texas, January 18 to 20, 1927. Dan Scoates, P. O. Box H, College Station, Texas, secretary.

Missouri Retail Hardware Association Convention and Exhibition, headquarters, Hotel Statler, St. Louis, January 24, 25, 26, 1927. F. X. Becherer, Secretary, 5106 North Broadway, St. Louis.

Indiana Retail Hardware Association Convention, Claypool Hotel, Indianapolis, Exhibition at Cadle Tabernacle, January 24, 25, 26, 27, 1927. G. F. Sheely, Secretary-Treasurer, 911-913 Meyer Kiser Bank Building, Indianapolis.

Oklahoma Hardware and Implement Association Convention, headquarters, Masonic Temple, Oklahoma City, January 25, 26, 27, 1927. Charles L. Unger, Secretary-Treasurer, 207-208 Bloomfield Building, Oklahoma City.

Connecticut Hardware Association Convention, New Haven, February, 1927. Henry S. Hitchcock, Secretary, Woodbury.

Nebraska Retail Hardware Convention and Exposition, February 1, 2, 3, 4, 1927. Headquarters, Cornhusker Hotel, Lincoln. George H. Dietz, Secretary-Treasurer, 414-419 Little Building, Lincoln.

Wisconsin Retail Hardware Association Convention and Exhibition, headquarters, Auditorium, Milwaukee, February 1, 2, 3, 4, 1927. George W. Kornely, 1476 Green Bay Avenue, Milwaukee, Exhibit Manager. P. J. Jacobs, Secretary-Treasurer, Stevens Point.

Kentucky Hardware and Implement Association convention and exhibition, Jefferson County Armory, Louisville, Kentucky, February 1 to 4, 1927. J. M. Stone, 200 Republic Building, Louisville, Kentucky, secretary and treasurer.

North Dakota Retail Hardware Association Convention and Exhibition, Grand Forks, February 8, 9, 10, 1927. C. N. Barnes, Secretary, Grand Forks.

Iowa Retail Hardware Association Convention, headquarters, Hotel Savery, Des Moines. Exhibition at Des Moines Coliseum, February 8, 9, 10, 11, 1927. A. R. Sale, Secretary, Mason City.

New York State Retail Hardware Association, Inc. Convention headquarters, Eyc Hotel, Albany. Exhibition at State Armory, February 8, 9, 10, 11, 1927. John B. Foley, Secretary, City Bank Building, Syracuse.

Michigan Retail Hardware Convention and Exhibition, Grand Rapids, Michigan, February 8, 9, 10, 11, 1927. Arthur J. Scott, Secretary, Marine City, Michigan. K. S. Judson, 248 Morris Avenue, Grand Rapids, Michigan, Exhibit Manager.

Minnesota Retail Hardware Association Convention and Exposition, St. Paul,

February 15 to 18, 1927. Manager and Treasurer, Charles H. Casey, Nicollet at 24th Street, Minneapolis, Minnesota.

Pennsylvania and Atlantic Seaboard Hardware Association, Philadelphia Commercial Museum, February 15, 16, 17 and 18, 1927. Sharon E. Jones, Secretary-Treasurer, Wesley Building, Philadelphia, Pennsylvania.

Ohio Hardware Association Convention and Exhibition, Columbus, February 15, 16, 17, 18, 1927. James B. Carson, secretary, 411 Mutual Home Bldg., Dayton.

Illinois Retail Hardware Association convention and exhibit, Hotel Sherman, Chicago, February 15, 16, 17, 1927. Leon D. Nish, 14 North Spring Street, Elgin, Illinois, secretary.

California Retail Hardware and Implement Association Convention and Exhibition, Sacramento Memorial Auditorium, February 15, 16, 17, 18, 1927. Hotel headquarters, The Senator. Le Roy Smith, Secretary, 112 Market Street, San Francisco.

South Dakota Retail Hardware Association Convention, headquarters, Coliseum, Sioux Falls, February 22, 23, 24, 1927. Chas. H. Casey, Manager-Treasurer, Nicollet Avenue and 34th Street, Minneapolis.

New England Hardware Dealers' Convention and Exhibition, Mechanics' Building, Boston, Massachusetts, February 22, 23 and 24, 1927. George A. Fiel, Secretary, 80 Federal Street, Boston.

Michigan Sheet Metal and Roofing Contractors' Association, Pantlind Hotel, Grand Rapids, March 1, 2 and 3, 1927. Frank E. Ederle, Secretary, 1121 Franklin Street, S. E., Grand Rapids.

Retail Hardware Doings

Illinois

Snyder & Woldord have purchased the London Mills Hardware Company, London Mills.

The George Hardware store at Tamarva was destroyed by fire.

Iowa

F. B. Holmes bought a half interest in the hardware business of H. N. Edmondson of Gifford.

Minnesota

Ed Knight opened a hardware store at Lake City.

Missouri

L. H. Borgman purchased the Leasy Hardware business at Buckner.

Carl and Paul Klump purchased the Holliday Hardware Company of Rock Port and it is now known as the Klump Hardware Company.

North Dakota

The Sharf Hardware Store at Glenburn was destroyed by fire.

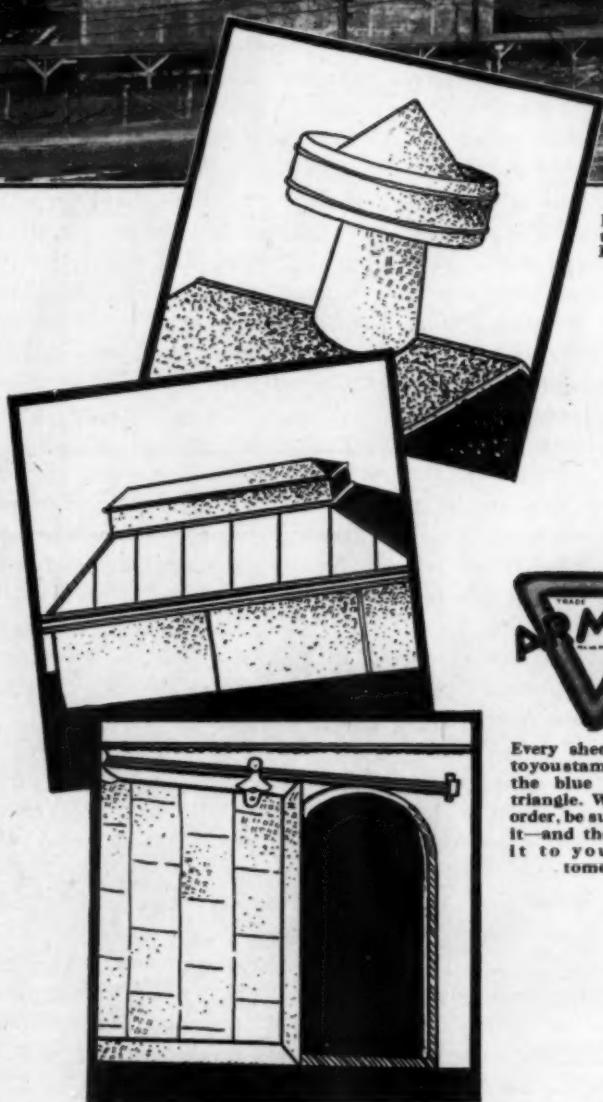
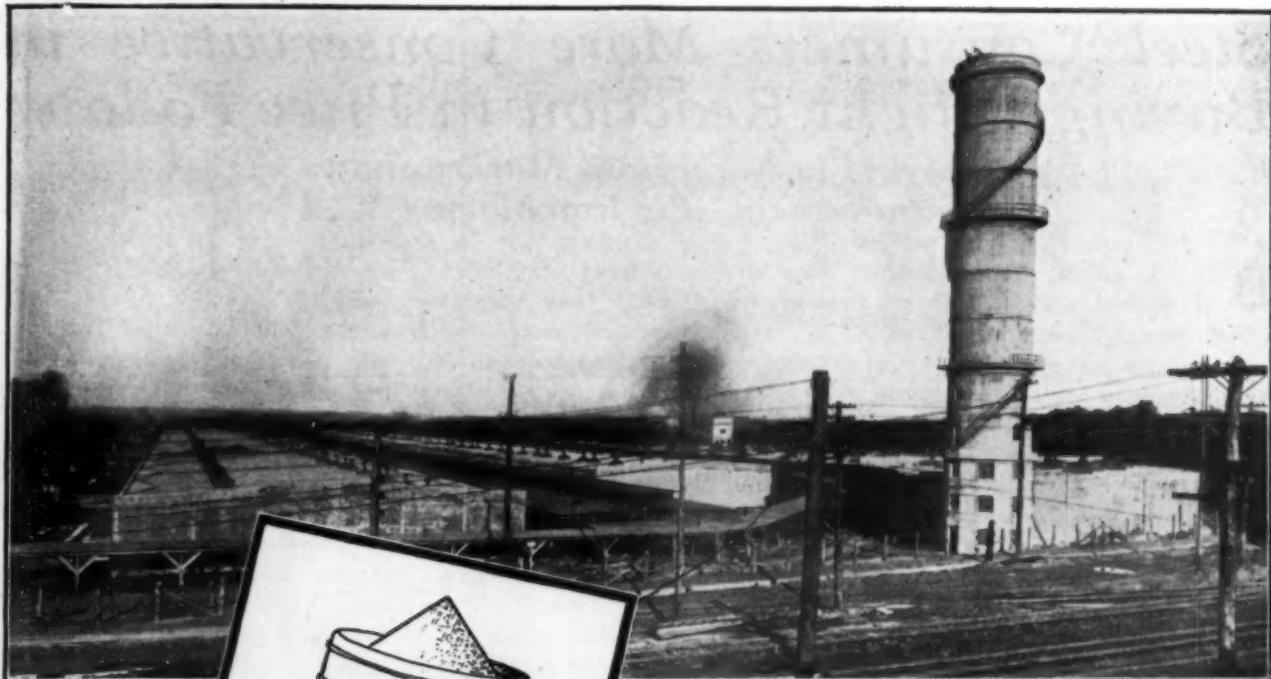
Texas

The Star Cash Hardware Company of Electra is remodeling a building on Bryan street where they will open a branch store.

Wisconsin

C. B. Schmidt purchased the stock of the Paul Strehlow Hardware Company, 810 Packard avenue, Cudahy.

The Hardware Store of Joseph F. Rack, 862 Grand avenue, Kenosha, suffered a fire loss of approximately \$500.



In 1915, Dowman-Dozier, Sheet Metal Contractors, equipped the Candler Warehouse, Atlanta, Ga., with ARMCO Ingot Iron skylights, ventilators and fire doors. Was their confidence in "quality iron" justified? Read the story below.

As an inspection engineer found it

THE Candler Warehouse is one of the many instances of customer satisfaction after "quality iron" is used.

Along a trunk railway for more than ten years this ARMCO Ingot Iron has proved its ability to resist rust, in spite of smoky, corrosive conditions.

And in the words of inspection engineer Charles R. Justi, "**ARMCO Ingot Iron has given us entirely satisfactory service.**"

Such is the worthwhile value your customers get when you sell them ARMCO Ingot Iron. For you this means more business with increased profits—for your customers it means the lowest possible service cost per year.

**The American Rolling Mill Co.
Middletown, Ohio**

Export: The ARMCO International Corp.
Cable Address: ARMCO, Middletown

ARMCO
TRADE MARK

INGOT IRON
The Purest Iron Made

Say you saw it in AMERICAN ARTISAN—Thank you!

Steel Consumers More Conservative in Buying—Slight Reaction in Price Follows

Buying in Nonferrous Market Shows Improvement—Pig Iron Moving Well

BUYING policies of consumers of finished steel have become more strongly tinged with conservatism the past week.

Consumption has developed little deflection outside of the automotive and parts industries, where the seasonal shrinkage has come later than usual, and mill shipments for October to date are practically on a parity with September, but incoming tonnage tends to become lighter.

Some large users, it is evident, overbought for the third quarter prior to the advance to 2.00 cents, Pittsburgh, or equivalent for bars and shapes and 1.90 cents for plates. These users were permitted to specify the uncompleted portions of these contracts for this month, accounting in part for decreased new commitments.

The knowledge that they can obtain shipments of the heavy finished lines on a week's notice, in most instances, has fortified some consumers in running their inventories still lower.

A natural reaction to this condition is to be found in prices. It cannot be said that the price structure has weakened materially yet concessions, always present in the strongest market, are more numerous.

Steel corporation subsidiaries, with an ingot rate just under 86 per cent, are operating somewhat higher than independent producers.

Copper

The formation of the exporters' association was marked by a rapid recovery in the copper market after it had fallen almost to 14.00 cents, delivered. It now stands at 14.20 cents, Connecticut; 14.30 cents to 14.35 cents, Midwest.

However, producers were more conservative than some interests outside of the association.

A fair amount of business was done, largely for November ship-

ment to domestic users. September deliveries fell a little from August's height but remained more than average, at 119,911 tons, of which 78,459 tons were domestic.

Zinc

Prime western zinc for prompt shipment has recovered $\frac{1}{8}$ cent in 10 days to 7.37 $\frac{1}{2}$ cents, East St. Louis, and is at a premium of 2 $\frac{1}{2}$ points over November. The premium is due to light stocks.

The market has been rather surprised at the amount of metal moving on old orders as buying has appeared mostly quiet for a month, and yet is in a tight position. A fair amount is done from day to day without much shopping around, and business is greater than realized until a period is passed and the total added up. High grade is strong at 9.25 cents to 9.50 cents.

Tin

Tin continues to jump around, as is natural when the price is over 70.00 cents. Buying has not been heavy the past week but has been of good size some days.

Spot and nearby continue to command a premium of around 2 cents, but not quite so much as a short time ago.

Lead

Lead buying has been a little more active lately, after the American Smelting & Refining Company had cut to 8.35 cents, New York, and the East St. Louis market went down to 8.10 cents.

The open market in the East has been the same as the leading interest while in the Midwest some firmness is reported with business active lately at 8.12 $\frac{1}{2}$ cents.

Pig Iron

Menaced by higher fuel costs, daily becoming more pronounced, merchant pig iron producers are standing firmly on prices quoted last week.

One inaugurated a 50-cent ad-

vance today, now quoting \$18.50, valley, on basic and \$19 on No. 2 foundry and malleable, with no sales yet except a small lot of No. 1 iron at \$20, valley.

The \$19.50, valley, bessemer price has governed on two sales totaling 350 tons. Prior to the advance this interest sold a small lot of foundry iron at \$18.50, valley. Another merchant interest has sold No. 2X iron for Ohio delivery at \$19 and \$19.50. A few small lots of No. 2 plain have gone at \$18.50, valley.

On one first quarter inquiry for No. 2 plain, \$20, valley, has been quoted, but no action has followed.

At Chicago reports are current of sacrifice and resale iron at \$20.50, Chicago furnace, but producers claim firmness for the primary market except in western and southwestern consuming territory.

At Birmingham hand-to-mouth buying by consumers will be met by furnace interests with a similar move in production.

Much iron is moving. The price of \$20, base, on No. 2 foundry is firm. Surplus stocks will probably be moved in the next 60 days.

Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$43.25; commercial 45-55, \$40.25, and plumbers', \$37.25, all per 100 pounds.

Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$16.50 to \$17.00; old iron axles, \$22.00 to \$22.50; steel springs, \$16.00 to \$16.50; No. 1 wrought iron, \$12.75 to \$13.25; No. 1 cast, \$15.50 to \$16.00, all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 9 cents; zinc, 5 cents, and cast aluminum, 18 cents.

Durable All the Way Through—

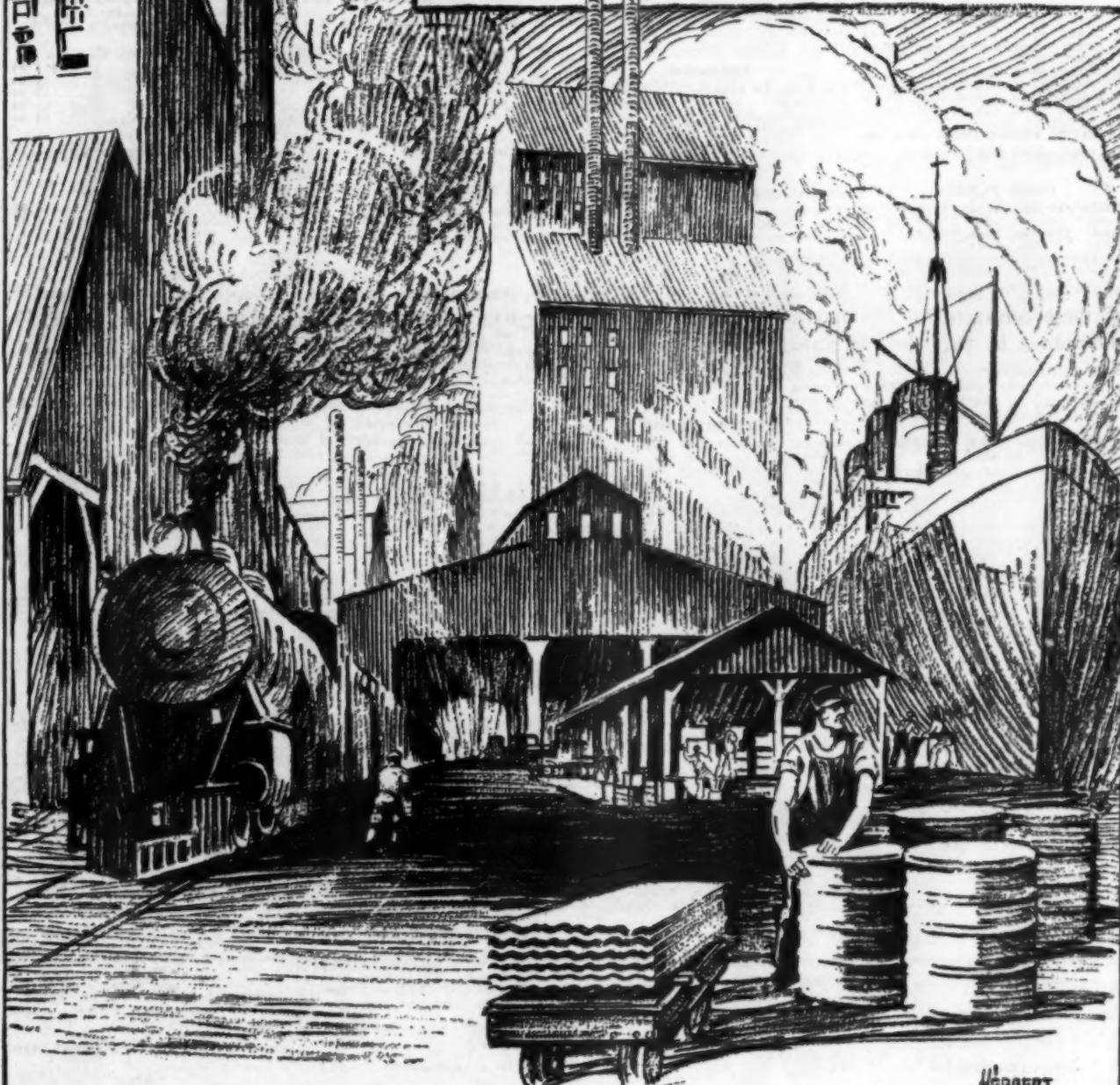
Inland Copper Alloy Steel Sheets

For All Exposed Uses

INLAND STEEL COMPANY, 38 So. Dearborn St., Chicago

Works: Indiana Harbor, Indiana; Milwaukee, Wisconsin
Chicago Heights, Illinois

Branch Offices and Representatives: St. Paul, St. Louis,
Salt Lake City, Milwaukee, Kansas City, New Orleans, El Paso



HERBERT JOSEPH.

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS

PIG IRON

Chicago Fdy., No. 2.....	\$21.00
Southern Fdy., No. 2.....	26.01
Lake Superior Charcoal.....	27.04
Malleable.....	21.00

FIRST QUALITY BRIGHT TIN PLATES

IC 20x28 112 sheets.....	\$25.10
IX 20x28.....	29.00
XXX 20x28 56 sheets.....	16.50
XXXX 20x28.....	17.50
(XXXX) 20x28.....	18.50

TERNE PLATES

Per Box	
IC 20x28, 40-lb. 112 sheets.....	\$27.00
IX 20x28, 40-lb. 112 sheets.....	29.00
IC 20x28, 25-lb. 112 sheets.....	22.20
IX 20x28, 25-lb. 112 sheets.....	23.20
IC 20x28, 20-lb. 112 sheets.....	20.20
IV 20x28, 20-lb. 112 sheets.....	23.00
IC 20x28, 15-lb. 112 sheets.....	18.50

"ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including 1/4 in.—100 lbs.....	\$4.50
---	--------

COKE PLATES

Cokes, 80 lbs., base, 20x28.....	\$12.00
Cokes, 90 lbs., base, 20x28.....	12.80
Cokes, 100 lbs., base, 20x28.....	13.00
Cokes, 107 lbs., base, 1c 10x18.....	13.20
Cokes, 125 lbs., base, 1a 20x28.....	15.70
Cokes, 156 lbs., base, 66 sheets.....	8.70
Cokes, 175 lbs., base, 66 sheets.....	9.55
Cokes, 196 lbs., base, 66 sheets.....	10.40

BLUE ANNEALED SHEETS

Base 10 ga.....	per 100 lbs. \$2.50
"Armco" 10 ga.....	per 100 lbs. 4.00

ONE PASS COLD ROLLED BLACK

No. 18-20.....	per 100 lbs. \$3.75
No. 22.....	per 100 lbs. 3.90
No. 24.....	per 100 lbs. 3.95
No. 26.....	per 100 lbs. 4.65
No. 27.....	per 100 lbs. 4.10
No. 28.....	per 100 lbs. 4.20
No. 29.....	per 100 lbs. 4.25
No. 30.....	per 100 lbs. 4.45

"ARMCO" GALVANIZED

"Armco" 24.....	per 100 lbs. \$6.25
-----------------	---------------------

GALVANIZED

No. 16.....	per 100 lbs. 1.30
No. 18.....	per 100 lbs. 1.45
No. 20.....	per 100 lbs. 1.60
No. 22.....	per 100 lbs. 1.65
No. 24.....	per 100 lbs. 1.80
No. 26.....	per 100 lbs. 1.95
No. 27.....	per 100 lbs. 2.00
No. 28.....	per 100 lbs. 2.15
No. 29.....	per 100 lbs. 2.25
No. 30.....	per 100 lbs. 2.70

BAR SOLDER

Warranted 50-50.....	per 100 lbs. 4.25
-------------------------	-------------------

COMMERCIAL

45-55.....	per 100 lbs. 40.25
Plumbers.....	per 100 lbs. 37.25

ZINC

In Slabs.....	\$8.00
Cash Lots (600 lbs.).....	118.75
Sheet Lots.....	14.75

BRASS

Sheets, Chicago base.....	19 1/4 c
Mill base.....	19 1/4 c
Tubing, brazed base.....	25 1/4 c
Wire, base.....	19 1/4 c
Rods, base.....	16 1/4 c

COPPER

Sheets, Chicago base.....	22 1/4 c
Mill base.....	21 1/4 c
Tubing, seamless base.....	25 1/4 c
Wire, No. 9 B & S Ga.....	19 1/4 c
Wire, No. 10, B & S Ga.....	19 1/4 c
Wire, No. 11, B & S Ga.....	19 1/4 c
Wire, No. 8, B & S Ga. and heavier.....	18 1/4 c

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

LEAD

American Pig.....	\$9.00
Bar.....	10.00
Sheet.....	
Full Coils.....	per 100 lbs. 14.00
Cut Coils.....	per 100 lbs. 14.25

TIN

Pig tin.....	per 100 lbs. 78.00
Bar tin.....	per 100 lbs. 79.00
ASBESTOS	
Paper up to 1/16.....	.6c per lb.
Roll board.....	.64c per lb.
Mill board 3/32 to 1/4.....	.6c per lb.
Corrugated Paper (250 sq. ft. to roll).....	\$6.00 per roll

BRUSHES

Hot Air Pipe Cleaning Bristle, with handle, each.....	\$0.85
Flue Cleaning Steel only, each.....	1.25

BURRS

Coppers Burrs only.....	40%
-------------------------	-----

CEMENT, FURNACE

American Seal, 5-lb. cans, net	1/40
American Seal, 10-lb. cans, net	20
American Seal, 25-lb. cans, net	20
Pecora.....	per 100 lbs. 7.50

CLIPS

Damper	
Acme, with tall pieces, per doz.....	\$1.25
Non-Rivet tall pieces, per doz.....	25
COPPERS—Soldering Pointed Roofing	
3 lb. and heavier.....	per lb. .40c
2 1/2 lb.	per lb. .40c
2 lb.	per lb. .40c
1 1/2 lb.	per lb. .50c
1 lb.	per lb. .60c

CORNICE BRAKES

Chicago Steel Bending Nos. 1 to 6B.....	Net
--	-----

CUT-OFFS

Kuehn's Korrekt Kutoffs: Galv., plain, round or cor. rd. standard gauge.....	40%
26 gauge.....	30%

DAMPERS

"Yankee" Hot Air	
7 inch, each 20c, doz.....	\$1.75
8 inch, each 25c, doz.....	2.40
9 inch, each 30c, doz.....	2.75
10 inch, each 32c, doz.....	3.00

REVERSIBLE CHECK

8 inch, each.....	\$1.50
9 inch, each.....	1.70

DIGGERS

Post Hole	
Iwan's Split Handle (Eureka)	
4-ft. Handle.....	per doz. \$14.00
7-ft. Handle.....	per doz. 24.00
Iwan's Hercules pattern, per doz.....	14.00

EAVES TROUGH

Conductor Pipe Milcor	
Galv. Crimped, crated..	75 & 5%
ELBOWS	
Conductor Pipe Milcor	
Galv., plain or corrugated, round flat Crimp.	

28 Gauge.....	80%
26 Gauge.....	65%
24 Gauge.....	55%

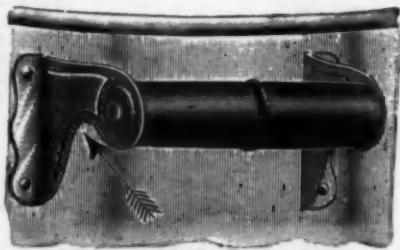
Square Corrugated	
No. 28 Gauge.....	50%
No. 26 Gauge.....	35%

Special Corrugated	
5-inch.....	\$1.00
7-inch.....	1.60

Adjustable—Uniform Blue "Milcor" No. 28 Gauge. Uniform Blue.	
5-inch.....	\$1.60
6-inch.....	1.60
7-inch.....	1.75
8-inch.....	2.40

WOOD FACES—50% off list.	
726-6-12 1/2% (100 rods).....	\$28.65

KEystone BOILER HANDLES



WE make a complete line of Boiler Handles.

Also handles for Boiler Covers.

Cut shows No. 40 style.

Let us send you samples.

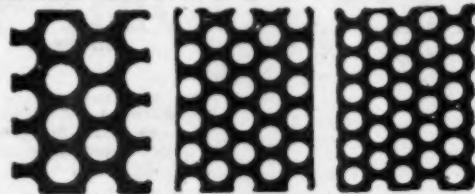
Complete catalog on request.

BERGER BROS. CO.

229 to 237 ARCH STREET PHILADELPHIA, PA.
Warehouses and Factory: 100 to 114 Broad Street

Manufacturers of "Quaker City" line of Meters, Ends, Caps and Outlets

PERFORATED METALS

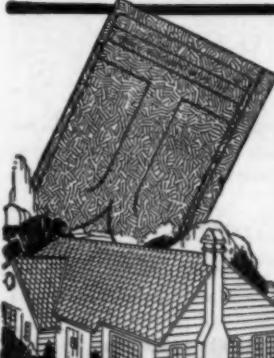


All Sizes and Shapes of Holes
In Steel, Zinc, Brass, Copper, Tinplate, etc.
For All Screening, Ventilating and Draining
EVERYTHING IN PERFORATING METAL.

THE HARRINGTON & KING PERFORATING CO.

• 5649 FILLMORE ST.—CHICAGO, ILL., U. S. A.

• NEW YORK OFFICE 114 LIBERTY ST. •



Metal Shingles—Both Painted and Galvanized

CORTRIGHT Painted Shingles come painted red or green.
Our galvanized shingles come hand dipped; also stamped from sheets already galvanized.
All Cortright Shingles are made in four well designed patterns, and are shown in our booklet "Concerning that Roof."
Glad to send a copy.

CORTRIGHT METAL ROOFING CO.
50 N. 23rd Street, Philadelphia
528 S. Clark Street, Chicago

CORTRIGHT METAL SHINGLES

EVERYTHING USED IN SHEET METAL WORK

A Complete Stock Insures Prompt Shipment

In our warehouse you will find one of the most complete stocks in the country. Not only complete as to quantity but selected by men who have had many years of experience.

There are 12 men in our employ who have been with us a total of 261 years—an average of 22 years per man. It is the knowledge resulting from this experience that we offer you in Osborn Service.

The J. M. & L. A. OSBORN CO.

CLEVELAND

Buffalo Warehouse, 64-68 Rapin Street

The NEW IMPROVED "STANDARD"

Rotable Ventilator



Patents pending

STANDARD VENTILATOR CO., LEWISBURG, PA.

This favorite cone-shaped ventilator is now improved in several important points.

The weight of the ventilator body is now carried on a concave thrust bearing nested in the apex of the conical body. This bearing turns upon the pivot point of the stationary center spindle.

The bronze Guide Bushings are now made of non-corrosive bronze which minimizes friction and any tendency to screech when body is rotating.

There are other new features. Write today for new catalog and pricelist.

LEWISBURG, PA.

Plecker's Galvanized Eave Trough and Corrugated Expanding Conductors

Made of
Keystone
Copper Bearing
Steel



CLARK-SMITH HARDWARE CO.

Costs no more
Lasts longer
Therefore
Cheapest

PEORIA, ILLINOIS

An Efficient Sheet Metal Shop Employs Efficient Help and
Gives These Men Efficient, Up-to-date Tools and Machinery

October 23, 1926

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NETTING, POULTRY		ROOFING
Galvanized before weave-	ing	Per Square
Galvanized after weaving.	53½-5%	
PASTE		
Asbestos Dry Paste:		
200-lb. barrel	\$16 00	
100-lb. barrel	8 75	
35-lb. pail	1 50	
10-lb. bag	1 10	
5-lb. bag	.60	
2½-lb. cartons	.35	
PIPE		
Conductor		
Cor. Rd., Plain Rd. or Sq.		
"Interlock" Galvanized		
Crated and nested (all gauges)	75-2½%	
Crated and not nested (all gauges)	70-15%	
"Milcor" "Titlelock" Uniform		
Blue Stove		
28 gauge, 5 inch U. C. nested	11 00	
28 gauge, 6 inch U. C. nested	12 00	
28 gauge, 7 inch U. C. nested	14 00	
30 gauge, 5 inch U. C. nested	10 00	
30 gauge, 6 inch U. C. nested	10 50	
30 gauge, 7 inch U. C. nested	13 00	
T-Joint Made up		
6-inch, 28 ga.....per 100	32 50	
Furnace Pipe		
Double Wall Pipe and Pipe Fittings	40%	
Single Wall Pipe, Round		
Iron Pipe Galvanized	40%	
Galvanized and Black Fittings	40%	
Milcor Galvanized Pipe and Fittings	40%	
Lead		
Per 100 lbs.	\$12 50	
POKERS, STOVE		
Wr't Steel, str't or bent,		
.....per doz.	\$8 75	
Nickel Plated, coil handles,		
.....per doz.	1 10	
POKERS, FURNACE		
Each	30 50	
PULLEYS		
Furnace Tackle....per doz.	\$8 00	
.....per gross	6 00	
Furnace Screw (encased).....per doz.	75	
Ventilating Register		
Per gross	9 00	
Small, per pair.	.30	
Large, per pair.	.50	
PUTTY		
Commercial Putty, 100-lb. kits	\$3 40	
QUADRANTS		
Malleable Iron Damper.....	10%	
REDUCERS—Oval Stove Pipe		
Per doz.		
7—6, 1 doz. in carton.....	\$2 00	
BASEBOARD REGISTERS		
Excelsior	50%	
FLOOR REGISTERS AND BORDERS		
Cast Iron	20%	
Steel and Semi-Steel	40%	
In lots less than 50	33½%	
Baseboard	40%	
In lots less than 50	33½%	
Adjustable Ceiling Ventilators	40%	
Register Faces—Cast and Steel		
Japanned, Bronzed and Plated 4x6 to 14x14	40%	
In lots less than 50	33½%	
Large Register Faces—Cast, 14x14 to 38x42	50%	
Large Register Faces—Steel, 14x14 to 38x42	65%	
In lots less than 50	60%	
RIDGE ROLL		
Milcor Galv. Plain Ridge Roll, b'did	75-10-5%	
Galv. Plain Ridge Roll, crated	75-10%	
Globe Finials for Ridge Roll	50%	
ROOFING		
Best grade, slate surf. prep'd	\$2 30	
Best talc surfaced.....	2 65	
Medium talc surfaced.....	2 06	
Light talc surfaced.....	1 26	
Red Rosin Sheeting, per ton	57 00	
SCREWS		
SHEET METAL		
No. 7, 1½×¾, per gross	\$0 52	
No. 10, ¾×¾, per gross	63	
No. 14, ¾×¾, per gross	89	
SHEARS, TINNERS & MACHINISTS'		
Viking	\$22 00	
SHOES		
Milcor		
Galv. 28 Gauge, Plain or corg. round flat crimp..	60%	
26 gauge round flat crimp..	45%	
24 gauge round flat crimp..	15%	
SNIPS, TINNERS'		
Clover Leaf	40 & 10%	
National	40 & 10%	
Star	50%	
Milcor	Net	
SQUARES		
Steel and Iron	Net	
(Add for bluing, \$3 per doz. net.)		
Mitre	Net	
Try	Net	
Try and Bevel.....	Net	
Try and Mitre.....	Net	
Fox's	per doz. \$8 00	
Winterbottom's	10%	
STOPPERS, FLUE		
Common	per doz. \$1 10	
Gem, No. 1.....per doz.	1 10	
Gem, flat, No. 1.....per doz.	1 00	
VENTILATORS		
Standard	30 to 40%	
WIRE		
Plain annealed wire, No. 8 per 100 lbs.	\$3 00	
Galvanized barb wire, per 100 lbs.	3 90	
Wire cloth—Black painted, 12-mesh, per 100 sq. ft.	1 75	
Cattle Wire—galvanized catch weight spool, per 100 lbs.	3 85	
Galvanized Hog Wire, 80 rod spool, per spool	3 34	
Galvanized plain wire, No. 9, per 100 lbs.	3 50	
Steve Pipe, per stone.....	1 10	
WRINGERS		
No. 790, Guarantee per doz.	\$55 00	
No. 770, Bicycle per doz.	52 50	
No. 670, Domestic per doz.	48 50	
No. 110, Brighton per doz.	42 50	
No. 750, Guarantee per doz.	\$55 50	
No. 740, Bicycle per doz.	52 50	
No. 22, Pioneer per doz.	29 00	
No. 2 Superb per doz.	29 00	



Made in nine sizes

FAMOUS SINCE 1819—

Over one hundred years of tool making experience is built into each and every PEXTO Snip. The line is very complete and consists of every practical style and size. Material is the best, the finish is durable and they are fully guaranteed.

Write for catalogue No. 25A showing complete line of Sheet Metal Working Machines and Tools.

THE PECK, STOW & WILCOX CO.

SOUTHBURY, CONN., U. S. A.

MAKE YOUR OWN ELBOWS—

Any Size in Two Minutes
with this Machine.

JUST take your straight
pipe—fasten the form or
jig to it and in two minutes
use you have your 3 or 4 piece adjustable elbow
all ready for use and any size you want.

PURNELL ELBOW EDGING and CUTTING MACHINE

It is simple, sound and constructed of the very
best materials—both installers and manufacturers
are using it. No more large stock for the in-
staller. Enables you to make adjustable elbows
any size for each job at once when
you need them.

Write today for circular giving com-
plete description and price.

Chicago Elbow Machine Co.

MAIN OFFICE: 820 N. Boulevard,
Oak Park, Ill.

Range of
capacity
7 in. to
36 in.
Elbows
of
No. 24
gauge
and
lighter



CHICAGO STEEL CORNICE BRAKES

STANDARD OF THE WORLD



THE BEST BRAKE FOR ALL PURPOSE:
Most Durable, Easiest Operated, Low in Price;
Made in All Lengths and to Bend All Gauges
of Metal. Over 23,000 in use.

WRITE FOR PARTICULARS
DREIS & KRUMP MFG. CO., 7404 Loomis Street, CHICAGO

Whitney Lever Punches

Widest known—Most universally used



Skylight Punch

NEW SKYLIGHT
CLOSE CORNER
FLANGE PUNCH

Every Sheet Metal Worker Needs One.

Weighs Only 10 Lbs.

1-2 Inch Opening Above Die Top.



Skylight
Punch

EASIEST OPERATED
QUICKEST CHANGED
FREQUENTLY PAY FOR THEMSELVES
ON FIRST JOB

Over 40,000 In Use

MADE IN 6 SIZES



No. 2 Punch



Channel Iron Punch

OTHERS FOLLOWING

ASK YOUR JOBBER

or

Write us, for circu-
lars and prices.

W. A. Whitney
Mfg. Co.
715 Park Ave.,
ROCKFORD, ILL.



No. 4 Tinner's Punch



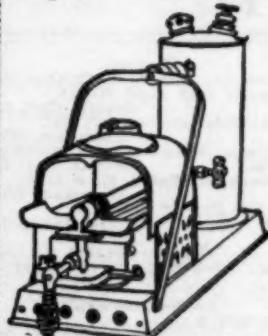
No. 8 Punch

BUYERS' DIRECTORY

Asbestos Paper.	Double-Duty Mfg. Co., Aurora, Ill.	Standard Furnace & Supply Co., Omaha, Neb.	Peck, Stow & Wilcox Co., Southington, Conn.
Sull Mountain Co., Chicago, Ill.	Lupton's Sons Co., David, Philadelphia, Pa.	St. Louis Heating Co., St. Louis, Mo.	Unishear Co., The, New York, N. Y.
Asbestos Products.	Milwaukee Corrugating Co., Milwaukee, Wis.	Succes Heater Mfg. Co., Des Moines, Iowa	Whitney Mfg. Co., W. A., Rockford, Ill.
Sull Mountain Co., Chicago, Ill.		Thomas & Armstrong Co., London, Ohio	Whitney Metal Tool Co., Rockford, Ill.
Bale Ties.		Thatcher Co., Chicago, Ill.	
American Steel & Wire Co., Chicago, Ill.	Enamel Wire.	Utica Heater Co., Utica, N. Y.	
Blowers.	Lalance & Grosjean Mfg. Co., Chicago, Ill.	Waterman-Waterbury Co., Minneapolis, Minn.	
Sturtevant Co., B. F., Boston, Mass.		Western Steel Products Co., Duluth, Minn.	
Bolts—Stove.	Wood Faces—Cold Air.	Wise Furnace Co., Akron, Ohio	
The Kirk-Latty Co., Cleveland, Ohio	American Wood Register Co., Plymouth, Ind.	Williamson Heater Co., Cincinnati, Ohio	
Brakes—Bending.	Eaglesfield Ventilator Co., Indianapolis, Ind.		
Dreis & Krump Mfg. Co., Chicago, Ill.	Milwaukee Corrugating Co., Milwaukee, Wis.		
Brakes—Cornice.	Fences.		
Dreis & Krump Mfg. Co., Chicago, Ill.	American Steel & Wire Co., Chicago, Ill.	Milwaukee Corrugating Co., Milwaukee, Wis.	
Brass and Copper			
Copper & Brass Research Association, New York	Flue Thimbles.	Glass—Wire.	
Hussey & Co., C. G., Pittsburgh, Pa.	Milwaukee Corrugating Co., Milwaukee, Wis.	David Lupton's Sons Co., Philadelphia, Pa.	
Merchant & Evans Co., Philadelphia, Pa.	Furnace Cement—Asbestos.	Grilles.	
Cans—Garbage	Connors Paint Mfg. Co., Wm. Milwaukee Corrugating Co., Milwaukee, Wis.	Diamond Mfg. Co., Wyoming, Pa.	
Osborn Co., The J. M. & L. A., Cleveland, Ohio	Troy, N. Y.	Hart & Cooly Co., New Britain, Conn.	
Castings—Malleable.	Milwaukee Corrugating Co., Milwaukee, Wis.	Independent Register & Mfg. Co., Cleveland, Ohio	
Fanner Mfg. Co., Cleveland, Ohio	Pecora Paint Co., Philadelphia, Pa.	Tuttle & Bailey Mfg. Co., Chicago, Ill.	
Ceilings—Metal.	Sull Mountain Co., Chicago, Ill.	Grilles—Store Front.	
Friedley-Voshardt Co., Milwaukee Corrugating Co., Milwaukee, Wis.		Tuttle & Bailey Mfg. Co., Chicago, Ill.	
Wheeling Corrugating Co., Wheeling, W. Va.		Handles—Boiler.	
Chaplets.	Furnace Cleaners.	Berger Bros. Co., Philadelphia, Pa.	
Fanner Mfg. Co., Cleveland, Ohio	Sturtevant Co., B. F., Boston, Mass.	Hangers—Eaves Trough.	
Chain—Sash.		Berger Co., L. D., Philadelphia, Pa.	
Parker-Kalon Corp., New York, N. Y.	Furnace Fans.	Milwaukee Corrugating Co., Milwaukee, Wis.	
Chimney Tops.	Sturtevant Co., B. F., Boston, Mass.	Heaters—Cabinet.	
Standard Ventilator Co., Lewisburg, Pa.	Warm Air Furnace Fan Co., The, Cleveland, Ohio	Gray & Dudley Co., Nashville, Tenn.	
Cleaners—Furnace.		Museller Furnace Co., L. J., Milwaukee, Wis.	
Sturtevant, Boston, Mass.	Furnace Rings.	Peninsular Stove Co., Detroit, Mich.	
Friedman & Peck, Chicago, Ill.	Milwaukee Corrugating Co., Milwaukee, Wis.	Waterman-Waterbury Co., Minneapolis, Minn.	
Cleaners—Suction.	Walworth Run Fdy. Co., Cleveland, Ohio	Heaters—School Room.	
Sturtevant, Boston, Mass.		Floral City Heater Co., Monroe, Mich.	
Copper.	Furnaces—Warm Air.	International Heater Co., Utica, New York	
Copper & Brass Research Association, New York	American Furnace Co., St. Louis, Mo.	Meyer Furnace Co., The, Peoria, Ill.	
Hussey & Co., C. G., Pittsburgh, Pa.	American Foundry & Furnace Co., Bloomington, Ill.	Standard Furnace & Supply Co., Omaha, Neb.	
Cornices.	Brillion Iron Works, Brillion, Wis.	Waterman-Waterbury Co., Minneapolis, Minn.	
Friedley-Voshardt Co., Milwaukee Corrugating Co., Milwaukee, Wis.	Chicago Furnace Supply Co., Chicago, Ill.	Heaters—Conductor.	
Cut-Offs—Rain Water.	Excelsior Steel Furnace Co., Chicago, Ill.	Berger Co., L. D., Philadelphia, Pa.	
Milwaukee Corrugating Co., Milwaukee, Wis.	Floral City Heater Co., Chicago, Ill.	Hotels.	
Dampers	Forest City Fdy. & Mfg. Co., Monroe, Mich.	Fort Shelby Hotel, Detroit, Mich.	
S. M. Howes Co., Charlestown, Mass.	Cleveland, Ohio		
Damper Clips	Gray & Dudley Co., Nashville, Tenn.	Humidifiers.	
S. M. Howes Co., Charlestown, Mass.	Indianapolis, Ind.	Robinson Furnace Co., Chicago, Ill.	
Diffuser—Air Duct.	Langenberg Mfg. Co., Columbus, Ohio	Jobbers—Hardware.	
Aeolus-Dickinson Co., Chicago, Ill.	St. Louis, Mo.	Clark-Smith Hardware Co., Peoria, Ill.	
Doors—Metal.	Lennox Furnace Co., Marshalltown, Ia.; Syracuse, N. Y.	Kitchen Utensils.	
David Lupton's Sons Co., Philadelphia, Pa.	Liberty Foundry Co., Utica, N. Y.	Lalance & Grosjean Mfg. Co., Chicago, Ill.	
Eaves Treugh.	Marshalltown Heater Co., Marshalltown, Iowa	Lath—Expanded Metal.	
Berger Bros. Co., Philadelphia, Pa.	May-Fiebeger Furnace Co., Newark, Ohio	Milwaukee Corrugating Co., Milwaukee, Wis.	
Berger Co., L. D., Philadelphia, Pa.	Meyer Furnace Co., The, Peoria, Ill.	Machines—Crimping.	
Clark-Smith Hardware Co., Peoria, Ill.	Monitor Furnace Co., Cincinnati, Ohio	Bertsch & Co., Cambridge City, Ind.	
Lupton's Sons Co., David, Philadelphia, Pa.	Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.	Machinery—Culvert.	
Milwaukee Corrugating Co., Milwaukee, Wis.	Mueller Furnace Co., L. J., Milwaukee, Wis.	Bertsch & Co., Cambridge City, Ind.	
New Jersey Zinc Sales Co., The, New York, N. Y.	Oakland Foundry Co., Belleville, Ill.	Machines—Tinsmiths.	
Wheeling Corrugating Co., Wheeling, W. Va.	Peninsular Stove Co., Detroit, Mich.	Bertsch & Co., Cambridge City, Ind.	
Elbows and Shoes—Conductor.	Quaker Mfg. Co., Chicago, Ill.	Chicago Elbow Machine Co., Oak Park, Ill.	
American Rolling Mill Co., Middletown, Ohio	Robinson Furnace Co., Chicago, Ill.	Dreis & Krump Mfg. Co., Chicago, Ill.	
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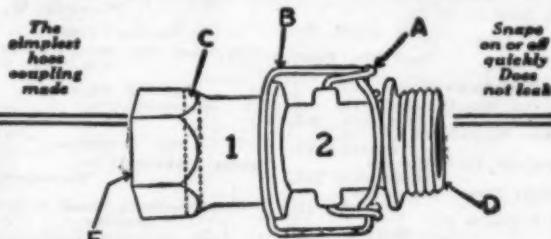


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It saves hose length and the hose, no kinking or twisting—no splashing.

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Eaglesfield Ventilator Co., Indianapolis, Ind.	Davis Co., Inc., C. S., Chicago, Ill.	Stove Pipe Reducers.	Independent Register & Mfg. Co., Cleveland, Ohio
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Northwestern Stove Repair Co., Chicago, Ill.	Merchant & Evans Co., Philadelphia, Pa.	Quick Meal Stove Co., St. Louis, Mo.	Sturtevant Co., B. F., Boston, Mass.
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American Rolling Mill Co., Middletown, Ohio	Sheets—Iron.	Quick Meal Stove Co., St. Louis, Mo.	David Lupton's Sons Co., Philadelphia, Pa.
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WANTS AND SALES

Any yearly subscriber to AMERICAN ARTISAN may insert advertisements of not more than fifty words in our Want and Sales Columns WITHOUT CHARGE.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired.

BUSINESS CHANCES

LIGHTNING RODS—Dealers who are selling Lightning Protection will make money by writing us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable is endorsed by the Mutual Insurance Companies and hundreds of reliable dealers. Write today for samples and prices. L. K. DIDDIE CO., Marshfield, Wis.

For Sale—Bargain. A good tin and sheet metal, furnace, plumbing and radiator shop. Robinson brake, power emery wheel, torch and test tank; a good set of plumbing and tinner's tools; good assortment of tinware and other salable goods. The place has grown so that I haven't the capital to run it and key it up. You could not start a business like this for \$1,000. Have new National cash register. First offer of \$700 takes it. You can make that in one winter. Address Lee O. Bailey, Parkston, South Dakota. 13-3t

For Sale—A first-class up-to-date, sheet metal and furnace business. Established nine years. Good reputation. Excellent location. This business is completely equipped and stocked. A wonderful opportunity for the right party. A good business the year around. Selling on account of ill health. Address X-65, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

For Sale—Sheet metal, furnace, fender and radiator shop in central Indiana city of 7,000 population. Only two tin shops in town. Good trade and reputation. Many small towns around. Plenty of tools and stock. Big shop. \$500 takes all. Address X-74, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 16-3t

For Sale—Sheet metal business established 10 years in city of 40,000 near Chicago. Inventory value of stock and tools, \$6,000, but can be bought at a very favorable figure. Must be sold at once. Act now. Address X-69, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

For Sale—One of the best paying plumbing, heating, and sheet metal businesses in eastern Iowa. Lots of work ahead. Fifteen percent discount for cash for a quick sale. Reason for selling account of health. Address X-73, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 16-3t

For Sale—Sheet metal roofing and furnace business in a good live Kansas town of 5,000 population. Good reason for selling. Do not answer unless you can raise \$1,500. Address X-71, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 15-3t

BUSINESS CHANCES

For Sale—Established fully equipped tin shop in Fort Arthur, Texas. Population 40,000. Retiring on account of old age. Opportunity for a hustler. Address P. A. Wutke, 1712 5th Street, Port Arthur, Texas. 13-3t

For Sale—A good general hardware stock, invoice about \$9,000; tools, fixtures, shelving, \$1,500; in a good dairy community. Address A. H. Gaumnitz, Oglivie, Minnesota. 15-3t

HELP WANTED

Wanted—Tinner and sheet metal worker. Must be good roofer. Steady work year around. Fine climate, excellent schools, churches of all denominations. Town of six thousand population. Married man preferred. If you want to locate in South, you can find no better climate year around. Good position. Address H. L. McArdle & Son, Troy, Alabama. 15-3t

Wanted—A married man not over 40 years of age with family, in a live southern town of 18,000 population. Steady position for right man. Must be first class sheet metal worker, able to lay out work and design general sheet metal work. Read Genesis 37-17. Address Dawsey Sheet Metal Works, Dothan, Ala. 16-3t

Tinners Wanted—To work for yourself. Stop punching the clock with \$5.00 stock and hand tools you can make \$10.00 to \$20.00 per day, at home or travel. I am doing it so can you. Full printed instructions \$2.00. \$1.00 first letter \$1.00 when you make it. Address L. E. Miller, Goodland, Indiana. 17-2t

Wanted—At once, an all-around, first-class tinner and furnace man. Steady work at \$35.00 a week. In a town of 2,000 population in northern Illinois. Address X-66, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

Wanted—At once. Furnace installer and sheet metal worker. State age and wages wanted in first letter. Address C. F. Tolz & Son, 238 Broadway, Waukesha, Wisconsin. 13-3t

Wanted—At once, experienced tinner and plumber; fifty cents per hour. Town of 2,000. Address Bridges and Bristow, Bedford, Iowa. 14-3t

Wanted—First class furnace salesman. Fine opportunity for man wishing to come to Colorado. Michael Heating Co., 414 W. Colfax, Denver, Colorado. 17-3t

SITUATION WANTED

Situation Wanted—Conscientious married man 35 years of age, with pleasing personality, desires a position as salesman to represent a reliable company in Wisconsin. Have had 17 years' experience in manufacturing, installing and selling at wholesale and retail. Open for position after October 15th. Address X-68, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

Situation Wanted—Must be steady position. Inside work. Would buy interest and run shop on shares. Illinois preferred. Address X-75, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 17-3t

Situation Wanted—By an experienced all-around sheet metal worker with 25 years' experience. Address P. S. McGuffin, General Delivery, Detroit, Michigan. 15-3t

SITUATION WANTED

Situation Wanted—By conscientious married man with 15 years' experience in ventilation and warm air furnace selling experience. Now employed as traveling salesman in Wisconsin for furnaces. Will be open for position on January 1. Can hold present position. Address X-72, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 15-3t

Situation Wanted—By first class warm air heating, ventilating, blow pipe and dust collecting man; 23 years' experience; married and sober. Wants steady position. State wages, etc., in first letter. Illinois or Wisconsin preferred. Address B. J. Hawkins, 425 North 4th street, Iron River, Michigan. 16-3t

Situation Wanted—By first class tinner and furnace man. Can do inside and outside work. 25 years at the trade. Nothing but steady job the year around. Am married. Can do anything that comes in any tin shop. Address W. J. Mack, 37 East Main Street, Saint Charles, Illinois. 16-3t

Situation Wanted—By first-class tinner and furnace man in northern Iowa or southern Minnesota county seat. At liberty about November 1st. Could take over shop on wages and commission. Address X-67, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 14-3t

Situation Wanted—By first class heating and ventilating man with good reliable firm. 12 years' experience. Can layout and erect own work. Address X-76, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 17-3t

Situation Wanted—By first-class sheet metal worker, tinner and plumber, warm air furnace installer and hot water heating. Address X-60, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 13-3t

Situation Wanted—Furnace salesmen and heating engineer of extraordinary ability to promote business, available now or December first. Address X-70, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 15-3t

TINNERS' TOOLS

For Sale—About 20 pounds Acid Core flux wire solder, \$6.00. 1 double burner gas bench soldering furnace, automatic control; cost \$12.00; will sell for \$5.00; in fine shape. 1 1-in. steam or hot water thermometer with pressure scale, \$3.00. Address Fred L. Roy, Orchard Park, New York. 15-3t

For Sale—One Dreis & Krump Chicago steel brake No. 163, power drive, six foot twelve gauge, heavy duty, same as new, only used one hour in experimental work and is in perfect condition. Accept \$300 cash for prompt sale. F. o. b. Camden, Indiana. A. B. Cripe. 13-3t

For Sale—1 8 ft. Robinson brake, 1 31" Niagara square shear, both in good condition, and for sale at a bargain. Address L. J. Brien, Lock Box No. 104, Hart, Michigan. 17-3t

Wanted—Sheet metal press, six to ten ton. Must be in good condition. Address E-Z Fountain Company, Wakefield, Kansas. 17-3t

BOOKS

Sheet Metal Duct Construction. by Neubecker—A treatise on the construction and erection of heating and ventilating ducts, including the cutting and forming of the metal, the laying out of the elbows, etc. A practical expert wrote this book and you'll find that it covers the subject thoroughly. By William Neubecker. Bound in cloth, 194 pages, 217 illustrations. Size 5½x8¾ inches. Price \$2.00. Order from Book Dept., AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

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Patent Attorney
Barrister Bldg., WASHINGTON, D. C.

WANTED

High Class Stove Salesman for Pennsylvania Territory

Man wanted must be familiar with Pennsylvania trade and have had a successful record in that territory. We have established trade and will give the right man an opportunity of making real money on salary and commission basis. All inquiries treated confidentially. FULLER & WARREN CO., Troy, New York. 15-3t

FURNACE SALESMEN WANTED

Further expansion of our business in the Eastern States in 1927 will require the services of two or three more salesmen. They must be competent warm air heating men, understand the Standard Code and have ability to produce business. Exceptional opportunity for some real business-getters.

**The Lennox Furnace Co.,
Syracuse, New York 17-4t**

FOR SALE

In Hartford, Conn., sheet metal business (established 1908) manufacturing blower systems, ventilating systems, dust collecting systems, roof ventilators and general sheet metal work of every description. Complete equipment of patterns, power and hand machines and tools, manufactured stock, office equipment and supplies, drafting room equipment and supplies, etc. Prospective orders will pay for it in short time. Owner retiring. Opportunity of a lifetime. For full particulars, address C. H. Kenny, P. O. Box 292, Unionville, Conn. 17-3t

ALUMINUM SOLDER

Order the FAULTLESS SOLDER and FLUX to solder all kinds of Aluminum from

Zinner Aluminum Solder Co.
Manufacturers and Distributors of High Grade
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1436 Latham Place Rockford, Illinois

SPECIAL NOTICES

FURNACE SALESMAN WANTED

For Illinois territory by well established furnace company. We prefer one who has not had previous road experience, but one who is a practical furnace man, is honest and willing to learn. Address L-84, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois 16-3t.

POSITION WANTED

By first class mechanic on gas stove development. Competent to take charge of pattern template and experimental work. Address L-85, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 16-3t.

WANTED

High Class Stove and Furnace Salesman

If you have made good in selling stoves and furnaces but looking for a position offering greater possibilities we may have the position you are seeking. Our program for 1927 requires two or three more first class men. Inquiries treated confidentially.

ROCK ISLAND STOVE CO.
Rock Island Illinois 16-2t

SPECIAL NOTICES

SITUATION WANTED

by Furnace Salesman and Heating Engineer of extraordinary ability to promote business, available now or December first. Address L-83, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois 15-3t.

SITUATION WANTED

Young man with 17 years experience in the manufacturing wholesale and retail sales of furnaces, desires position with a reliable furnace company. Address L-80, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois. 12-11.

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Indispensable—

PARKER-KALON PRODUCTS are considered indispensable in more than 35,000 sheet metal shops. Few, if any, of these shops we venture to say would care to get along without them.

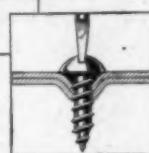
If you are not familiar with the time-and-labor-saving advantages of the four articles illustrated and described below, by all means ask your jobber's salesman about them the next time he comes around. Nearly all jobbers of tinner's supplies and furnace fittings handle PARKER-KALON PRODUCTS.

PARKER-KALON CORPORATION
354 West 13th St. New York

A First-Class Fastening
in Two Simple Operations



1. Punch or drill a hole slightly smaller than the diameter of the Screw being used.



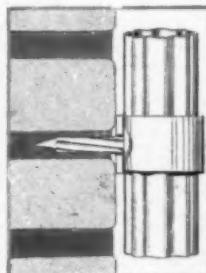
2. Turn the Screw in with a screw driver, the same as you would a wood screw in wood.

PARKER-KALON

**Hardened Self-Tapping
Sheet Metal Screws**
(Patented)

Used in place of stove bolts, rivets, etc., for joining sheet metal and for making fastenings to sheet metal.

As necessary in a sheet metal shop as sheet iron and solder. More than 25,000 sheet metal shops use them for such work as joining heating and ventilating ducts; joining sections of cornices and attaching ornaments to cornices; connecting blow pipes, erecting fans, housings, etc.; attaching metal trim to hollow metal windows and doors; putting up furnace and stove pipe, etc. Through the use of these Screws they have reduced their cost of doing this work from 50% to 75%.



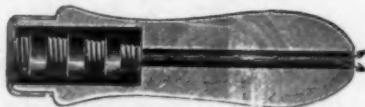
PARKER-KALON
Hardened Masonry Nails

(Patented)

Makes Fastenings to Brick, Mortar, etc., Easier, Quicker, Cheaper

The only Nail expressly designed for making fastenings to brick, mortar, concrete, etc. Sheet metal workers, everywhere, are using them for fastening gutter and leader pipe to brick walls; attaching cornices, flashings, etc., to brick walls and roofs; hanging ventilation ducts to concrete ceilings and for many other purposes. They are driven into masonry the same as ordinary nails are driven into wood.

PARKER-KALON
Shur-Grip Solder Iron Handles



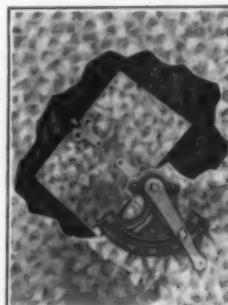
Showing inside construction of the SHUR-GRIp. The heat escapes through the hole in the direction indicated by arrows.

Cut their own thread on the stem of the solder iron as they are screwed on. Once on, they stay on. Can't get loose or come off unless unscrewed. Won't burn. Stay cool. Can't split. Pay for themselves many times over in the time and labor they save.

Authorities on heating and ventilation concede this to be the simplest, neatest and most efficient device yet designed for regulating small and medium size dampers in hot and cold air ducts, blow pipes, etc. Its use in the largest and finest buildings throughout the country is proof of this.

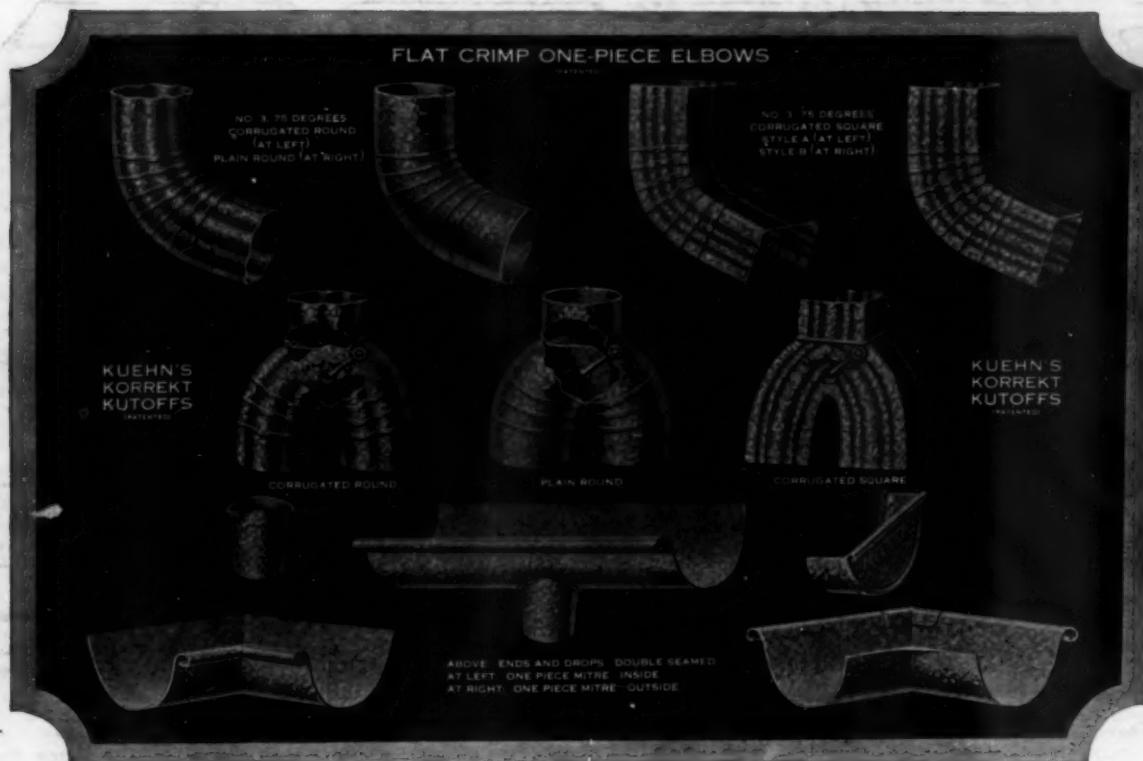
It is easily and quickly bolted or riveted to either curved or flat surfaces.

The damper can be set at any angle from "full open" to "tight shut" and held in the desired position merely by tightening the wing nut. The graduated flange at the bottom of the Quadrant indicates the exact position of the damper in the duct.



View of a Quadrant installation with part of the duct cut away to show the damper.

**in more than
35,000
sheet metal shops**



Treat Your Trade to Super-Quality

UNIFORMLY dependable quality—practical, patented designs and features not found in any other line—backed by the progressive Milcor organization policy for keeping equipment and facilities ahead of demand so as to insure speedy service always; these are the circumstances quite largely responsible for the extensive use of Milcor Products.

But the good judgment of the Building Trades and the Public has also been a most important factor in making

Milcor Products are made in Steel; "Coppered Metal;" "Wilder Metal;" Zinc; Copper; and pure, rust-resisting



the Milcor Line so popular. Sheet metal men who are determined to serve their customers' interests best, always insist on Milcor—and preferably, Milcor Products made from pure Copper, or from the famous rust-resisting ARMCO Ingot Iron.

The Milcor Line of Eaves Trough, Conductor Pipe and Trimmings, Roofing, etc., is complete in every detail and meets every requirement for efficiency in erection. Treat your Trade to Milcor super-quality. It's a habit that pays!

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SUPER-QUALITY SHEET METAL PRODUCTS